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U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

NHTSA-2001-10856-2

Memorandum

Subject: Materials for Inclusion in Docket No. NHTSA-2001-10856 Date: DEC 12 2001

From: Lloyd S. Guerci
Assistant Chief Counsel for Litigation

Reply to
Attn. of:

To: Chief, Docket Management Section

01 DEC 19 PM 2:30

DEPT OF TRANSPORTATION

We have forwarded to the Federal Register a Notice of Proposed Rulemaking, RIN 2127-A129. We expect this NPRM to be published shortly, with a 60-day comment period.

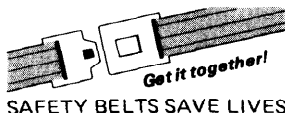
Attached to this memorandum are a variety of materials, consisting of publications by the Environmental Protection Agency (EPA) and the Department of Energy and printouts from the Internet. All of these materials are part of the public record for this rulemaking. A list of the materials is also attached. We request that you place the list and the materials in the rulemaking docket as soon as possible.

If you have any questions about this memorandum, please feel free to contact Enid Rubenstein of my staff at (202) 366-5263.

Thank you.

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Attachments



SAFETY BELTS SAVE LIVES

TIRE DISPOSITION PROPOSED RULE
REFERENCE MATERIALS

1. United States Environmental Protection Agency, "State Scrap Tire Programs, A Quick Reference Guide: 1999 Update", EPA-530-B-99-002 (August 1999)
2. United States Environmental Protection Agency, "Summary of Markets for Scrap Tires", EPA-530-SW-90-074B (October 1991)
3. Department of Energy "Consumer Energy Information: EREC Reference Briefs", Scrap Tire Recycling (August 2001)
4. Dooley, Richard, "FW: Bridgestone Firestone recall Fact Sheet," (September 11, 2000), incorporating Bridgestone/Firestone, Inc., "Recalled Scrap Tire Management Plan Fact Sheet", (August 30, 2000)
5. Bridgestone/Firestone, Inc., Voluntary Tire Recall (May 2001)
6. TipSheet, "Where Are All Those Tires Going?," EHC SEJ RTNDF (September 6, 2000)
7. Rubber Manufacturers Association, Scrap Tires, Facts and Figures (July 17, 2001)
8. Chubb, Lucy, "Firestone recall: Where have all the tires gone?," Environmental News Network (September 20, 2000)
9. Moore, Alan, "Recycled rubber goods maker moves into production stage," Capital District Business Review, (September 4, 2000)
10. "Recalled Tires Just a Drop in the Industry Bucket," Recycling Today News, (October 2000)



State Scrap Tire Programs

A Quick Reference Guide: 1999 Update



INTRODUCTION

Scrap tire management has been a serious concern over the past decade. Although great strides have been made in reducing the size and quantity of scrap tire stockpiles, at least 800 million scrap tires remain in stockpiles across the country. Many of the stockpiles continue to receive more scrap tires each year. (See Tables 1 and 2, p. ii, for further information on scrap tire generation.) In addition, in 1996, approximately 266 million scrap tires were generated in the United States. Since the first scrap tire law was passed in 1985, 49 out of 50 States have addressed scrap tire management through specific scrap tire laws and regulations or through State solid waste or transportation legislation.

The Scrap Tire Management Council estimates that, in 1996, of the 266 million scrap tires generated in the United States, approximately 24.5 million were recycled for purposes such as ground rubber in products and asphalt highways, stamped products, and agricultural and miscellaneous uses. An additional 10 million were beneficially used in civil engineering projects. These civil engineering uses are presented separately from the recycling figure because, although some are recycled into products such as artificial reefs or septic system drain fields, many are used in landfill construction and operation. In addition, 152.5 million were combusted for energy recovery, and 15 million were exported. The remaining 64 million were landfilled or disposed of in either legal or illegal stockpiles.

The following information summarizes each State's scrap tire management legislation and programs in a matrix for each State program. It is intended to provide State regulators, as well as members of industry, with a quick reference on State scrap tire programs across the country.

The matrix for each State program contains eight sections. The "State Contact" section provides the name, address, phone number, and fax number of the scrap tire program manager for the State; websites and e-mail information are given when available. The "Legislation and Regulations" section briefly outlines the history of scrap tire legislation for the State. The "Funding Sources/Fees" section addresses the State funds and collection fees authorized by the State. The "Collector, Seller, and Hauler Regulations" section summarizes the regulations that apply to these entities. Similarly, the "Storage and Processor Regulations" and the "Disposal Restrictions" sections outline relevant regulatory requirements. The "Financial/Market Incentives" section discusses grants and other programs that foster better scrap tire disposal/recycling waste management and reduction. The "Additional Information" section provides information about activities of interest related to scrap tires in a particular State, such as special field tests or studies, and innovative uses for scrap tires.

For the information contained in this publication, *State Scrap Tire Programs: A Quick Reference Guide*, the U.S. Environmental Protection Agency (EPA) contacted all States for the latest information (as of April 1998) on their programs. Overall figures for the information in this "Introduction" are based on estimates in the Scrap Tire Management Council's *Scrap Tire Use/Disposal Study, 1996 Update*, April 1997.

For further information on scrap tire management, contact the EPA Resource Conservation and Recovery Act (RCRA)/Superfund Hotline, Monday through Friday, 9:00 a.m. to 6:00 p.m.

Eastern Standard Time (EST). The national toll-free number is 800-424-9346. For the hearing-impaired, the number is TDD 800-553-7672. A document on scrap tire management, *Summary of Markets for Scrap Tires*, (Document No.: EPA/530-SW-90-074B, published October 1991), is available through the hotline or by writing: RCRA Information Center, U.S. Environmental Protection Agency, Office of Solid Waste (5305W), 401 M Street SW, Washington, DC 20460. The full report, *Markets for Scrap Tires* (PB92115252), is available for \$31.50 (subject to change) from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, 703-487-4600.

Table 1
Scrap Tire Generation: 1996

Passenger replacement ^a	175,328,000
Light truck replacement ^a	27,605,000
Medium, wide base, heavy & large off-the-road ^a	11,139,000
Farm ^a	2,460,000
Tires from scrapped vehicles ^b	49,476,000
Total Scrapped Tires	266,008,000
U.S. Population	265,100,000
Rate of Scrappage	1.00 per person

^a Figures from *Tire Industry Facts 1996*, Rubber Manufacturers Association (in preparation).

^b Estimates based on four tires per scrapped vehicle. Vehicle estimates for 1994 from the *Statistical Abstract of the United States*, U.S. Department of Commerce.

Source: Scrap Tire Management Council. 1997. *Scrap Tire Use/Disposal Study, 1996 Update*, Washington, DC.

Table 2
Estimated Destination for Scrap Tires in 1996

Destination	Percent of Generation	
Recycled		
Crumb Rubber	12.5	
Cut/Stamped/Punched Products	8.0	
Agricultural Uses	2.5	
Miscellaneous Uses	1.5	
Total Recycled	24.5 million	9% ^a
Beneficially Used in Civil Engineering	10 million	4% ^a
Combusted for Energy Recovery	152.5 million	57% ^a
Exported	15 million	6% ^a
Landfilled, stockpiled, or illegally dumped	64 million	24%
TOTAL GENERATED	266 million scrap tires	100%

^a 202 million scrap tires, or 76% of the scrap tires generated in 1996, had markets. Adapted from Scrap Tire Management Council, 1997. *Scrap Tire Use/Disposal Study, 1996 Update*, Washington, DC.

ALABAMA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p><u>Disposal and Land Filling</u> Russell Kelly Alabama Department of Environmental Management (ADEM) Solid Waste Section 1751 Congressman W.L. Dickinson Drive P.O. Box 301463 Montgomery, Alabama 36130-1463 Telephone: 334-271-7771 FAX: 334-279-3050</p> <p><u>Recycling</u> Michael Forster Alabama Department of Economic and Community Affairs P.O. Box 5690 Montgomery, Alabama 36103-5640 Telephone: 334-242-5336 FAX: 334-242-0552</p> <p><u>Permitting for Storage</u> Anthony Spencer Alabama Department of Public Health (RSA Tower, Suite 1250) Bureau of Environmental Services P.O. Box 303017 Montgomery, Alabama 36130 Telephone: 334-206-5373 FAX: 334-206-5788</p>	<ul style="list-style-type: none"> Alabama's Solid Waste Act was passed in May 1989. 	<ul style="list-style-type: none"> Not addressed in legislation. 	<ul style="list-style-type: none"> Not addressed.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Facilities that process and/or store tires must have a health permit. A manifest record showing origin of tires delivered to site and destination of tires leaving the site, tire stacking dimensions, separation distances and site description is also required. 	<ul style="list-style-type: none"> Disposal facilities must have a solid waste permit. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Three monofills for tires are permitted and operating. In 1990, the State legislature required that a study be performed to plan for improved scrap tire management in the State. A Tire Recycling Center was established at Gladsden State Community College in 1990 to conduct this study. It was completed in August 1991.

ALASKA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Glenn Miller Alaska Department of Environmental Conservation 410 Willoughby Avenue Juneau, Alaska 99801-1795 Telephone: 907-465-5153 FAX: 907-465-5362 E-mail: gmiller@envircon.state.ak.us</p> <p>David Wigglesworth Anchorage Office Telephone: 907-269-7582 FAX: 907-269-7600</p> <p>Tony Barter Alaskan Department of Transportation and Public Facilities 500 East Tudor Anchorage, Alaska 99507 Telephone: 907-269-6230 FAX: 907-269-6231</p>	<ul style="list-style-type: none"> No scrap tire legislation at the present time. 	<ul style="list-style-type: none"> The Alaska program is funded 100% from the State's general fund. 	<ul style="list-style-type: none"> No specific regulations.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Not applicable: no tire piles exceeding 500,000 tires are known to exist. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Recycling bill gives bidders' preference to recycled products. 	<ul style="list-style-type: none"> The Alaskan Department of Transportation was the first in the United States to field test rubberized asphalt.

ARIZONA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Sal Tandeau or Barry Abbot Arizona Department of Environmental Quality (ADEQ) Solid Waste Section Waste Programs Division 3033 North Central Avenue Phoenix, Arizona 85012 Telephone: 602-207-2226 FAX: 602-207-2383</p>	<ul style="list-style-type: none"> The Scrap Tire Law (HB 2687, Chapter 389) was passed in July 1990 and took effect on September 27, 1990. SB 1252, which took effect in September 1991, amends the Scrap Tire Law. HB 2144, which took effect September 30, 1992, also amends the Scrap Tire Law. SB 1024 and 1228, both of which took effect in July 1997, amend the Scrap Tire Law. 	<ul style="list-style-type: none"> A waste tire fund was established in September 27, 1990. Monies are raised through a 2% sales tax (not to exceed \$2/tire) on the retail sales of new tires. Counties receive a share of the waste tire fund based on the number of vehicle registrations in each county. New car dealers can charge a maximum of \$1/tire at the sale of a new car. New car dealers can charge a greater amount if they specify the dollar amount and its purpose. The 1997 amendment of the law extends the 2% new tire sales fee program to December 31, 2002. 	<ul style="list-style-type: none"> Retail tire sellers must accept waste tires from customers at the point of transfer. Scrap tire collection sites must be approved as a solid waste facility by the Department of Environmental Quality. Scrap tire collection sites must require, and tire sellers must show, a manifest for disposal of waste tires at the site. DEQ registration is required for all collection sites. State-funded waste tire collection sites must accept up to five tires per person per year from county residents with no fee assessed; they must accept waste tires from retail sellers of new tires with no fee. However, if a county can demonstrate that the funds it receives from the waste tire fund are insufficient to manage its program, then the county may charge a fee for disposal. A county or private enterprise receiving a contract or grant for tire management activities must provide at least one waste tire collection site in the county and may not refuse to accept waste tires from designated dealers.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> A site at which 5,000 or more scrap tires are stored outdoors on any day is subject to self certification requirements including the financial assurance requirement. A site at which more than 500 and fewer than 5,000 tires are stored on any day is subject to waste tire best management practices. A site at which more than 100 and fewer than 500 tires are stored is subject to proper storage practices outlined in the statute. A site at which fewer than 100 tires are stored is subject to local zoning and fire codes. 	<ul style="list-style-type: none"> As of January 1992, whole tires are banned from disposal in landfills. Chopped or shredded tires can be monofilled, but not landfilled. Chopped or shredded tires can also be used as waste tire daily cover at a solid waste landfill after ADEQ specifies the size of the parts into which the material must be cut. Rules were passed by the State's Regulatory Review Council in November 1992 that affect the disposal of scrap tires generated at mining facilities. Burial of tires generated at mining facilities will be permitted on-site for a period of 5 years. Companies must report to the DEQ the number of tires buried and allow inspection of tire disposal operations. Scrap tire manifests are required for disposal of tires at a collection site. 	<ul style="list-style-type: none"> The waste tire fund established in 1990 is used to provide funds to counties for use in contracting with private enterprises for waste tire processing and/or collection facilities. A permit to burn a tire-derived fuel can be issued by ADEQ if it is demonstrated that the burning will result in equal to or lower emissions than the burning of other types of fuel permitted by the Department and the applicant has met all requirements of Titles I and V of the Clean Air Act. As part of the demonstration, previous tests approved by EPA shall be accepted by ADEQ. 	<ul style="list-style-type: none"> Extensive field demonstrations and tests of rubberized asphalt have been performed over the past 20 years by the City of Phoenix. An Arizona crumb rubber facility has been in operation to process 3.5 million scrap tires annually for use in rubberized asphalt (90%), rubber hose, and other products (10%). An Arizona cement kiln has an air quality permit to burn waste tires.

ARKANSAS

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Elizabeth Hoover State of Arkansas Department of Pollution Control and Ecology Solid Waste Division P.O. Box 8913 Little Rock, Arkansas 72219-8913 Telephone: 501-682-0583 FAX: 501-682-0611</p>	<ul style="list-style-type: none"> Act 752, enacted in 1991, establishes regional solid waste management authorities and requires authorities to provide collection centers for tires. Act 748, enacted in 1991, provides for an income tax credit for equipment used exclusively to reduce, reuse, or recycle solid waste. Act 749, enacted in 1991, requires tire regulations to be written. These regulations were promulgated in July 1992. The Act includes language regarding the hauling, storage, and disposal of tires and requires permits for these activities. Act 1292, enacted in 1997, establishes the current tire retail sales tax. It also mandates additional reporting requirements for tire retailers and new motor vehicle dealers. 	<ul style="list-style-type: none"> Monies collected are placed in the Waste Tire Management Fund to provide grants for tire cleanup, recycling, and the establishment of waste tire collection centers. The Tire Grant Program sets aside 10% of total grant funds for special grants to districts for the removal of tires from illegal disposal sites. Since July 1991, there is a \$1/tire fee on all tires imported into Arkansas for disposal. Since August 1997, a \$1.75/tire retail sales tax is collected. Each Regional Solid Waste Management District (RSWMD) is allowed to assess a separate fee on truck tires--no more than \$4--since January 1, 1998. 	<ul style="list-style-type: none"> Permits are required for haulers of scrap tires handling more than 25 tires per load. Collection centers must be permitted. Sellers are required to file monthly returns with the Department of Finance and the applicable solid waste management district.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Storage sites with over 1,000 tires must be permitted as a processing facility. 	<ul style="list-style-type: none"> Since July 1992, whole tires have been banned from landfills. Scrap tires can be landfilled if they are cut, sliced, or shredded, or they can be monofilled. 	<ul style="list-style-type: none"> An income tax credit is available to businesses engaged in the reduction, reuse, or recycling of solid wastes. A 10% price preference is given for the purchase of retreads for State vehicles. If the retread tires were produced in Arkansas, an additional 1% price preference is added. A 30% income tax credit is available to waste management companies that invest in equipment used to reduce, reuse, or recycle solid waste, including scrap tires. 	

CALIFORNIA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p><u>General</u> Tom Ditsch California Integrated Waste Management Board (CIWMB) Waste Prevention and Market Development Division 8800 Cal Center Drive Sacramento, California 95826 Telephone: 916-255-2578 FAX: 916-255-2222 E-mail: tditsch@ciwmb.ca.gov Web site: http://www.ciwmb.ca.gov</p> <p><u>Regulations and Permitting</u> Cody Begley California Integrated Waste Management Board Permitting and Enforcement Division 8800 Cal Center Drive Sacramento, California 95826 Telephone: 916-255-4165 FAX: 916-255-4071 Web site: http://www.ciwmb.ca.gov</p>	<ul style="list-style-type: none"> SB 1322 was passed in 1989. It allows the Department of General Services and the California Integrated Waste Management Board (CIWMB) to promulgate regulations for State purchase of retread tires and requires the use of retreads on State vehicles (other than high-speed vehicles) after July 1, 1991. Under Assembly Bill 1843 (1989), the CIWMB was required to develop a permit program for waste tire facilities; set up a tire recycling program to reduce the landfilling of whole tires; and report to the legislature on the feasibility of using tires as a fuel supplement in cement kilns, lumber operations, and other industrial processes. The permit program and recycling program have been in place since 1993. The feasibility report has been completed. CIWMB's final regulations for minor and major tire facilities went into effect in 1993. AB 1306 requires that the California Department of Transportation (CalTrans), with CIWMB, review and modify all bid specifications for paving materials to encourage use of recycled materials, including scrap tires. New legislation regulating waste tire haulers was adopted in May 1996. 	<ul style="list-style-type: none"> Since July 1, 1990, a \$0.25/tire fee is collected on all tires at point of sale. The fee generates \$3 million to \$4 million annually for the California Tire Recycling Management Fund. The CIWMB is administering the fund. 	<ul style="list-style-type: none"> Transporters hauling more than four tires must register with CIWMB.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Since July 1, 1992, new major waste tire facilities (over 5,000 stored tires) must obtain a major waste facility permit from the CIWMB. Permit requirements include fire prevention, security and vector control measures, tire pile size and height limits, closure and pile reduction plans. In February 1992, the CIWMB issued requirements for obtaining a minor (under 3,000 tires) waste tire facility permit. 	<ul style="list-style-type: none"> Since January 1, 1993, whole tires have been banned from landfills. 	<ul style="list-style-type: none"> A 5% purchase price preference is available for State-purchased products made from materials derived from used tires. The CIWMB has a grant and loan program to encourage the recycling of tires. The CIWMB has the authority to issue grants and loans to qualified companies engaged in tire recycling, reuse, recovery or reduction operations, including tire shredding, crumb rubber production, pyrolysis, and the manufacture of products from scrap tires. The CIWMB is mandated to designate market development zones and provide economic and regulatory incentives to businesses within these zones for producing end products made with no less than 50% recycled material. Grants are made to Local Enforcement Agencies. 	<ul style="list-style-type: none"> Stabilization and remediation of waste tire sites. Conferences and workshops to promote recycling. Collection and analysis of emissions data from facilities using TDF. Civil engineering investigations. Local fire authority training. Emissions testing at coal-fired cogeneration facilities. Rubberized asphalt concrete technical assistance center.

COLORADO

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p><u>General</u> Glenn Mallory Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division HMWMD-SWIM-B2 4300 Cherry Creek Drive South Denver, Colorado 80222-1530 Telephone: 303-692-3445 FAX: 303-759-5355</p> <p><u>Market Incentives</u> Steve Johnson Colorado Housing and Finance Authority 1981 Blake Street Denver, Colorado 80202 Telephone: 303-297-7363 FAX: 303-297-2615</p>	<ul style="list-style-type: none"> • Solid waste regulations affecting scrap tire management became effective in May 1988. These regulations govern the final disposal of tires and regulate any site containing 10,000 or more tires as a solid waste facility. • An enforcement program is in place. 	<ul style="list-style-type: none"> • Since January 1, 1994, retailers of new tires or of new or used motor vehicles collect a recycling development fee of \$1/tire on any waste tire to send to the State's Department of Revenue for deposit in the Waste Tire Recycling Development Cash Fund (Fund). Retailers and the Department of Revenue each can retain up to 3-1/3% of the fee for administrative costs. • Tires that are recapped or otherwise reprocessed for use are exempt from the fee. 	<ul style="list-style-type: none"> • Not addressed.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • A facility is limited in the number of tires it can accept to the number it can process, store, recycle, or dispose of in a year. • Storage requirements include fire control, security measures, access roads, and proper solid waste and environmental permits. • Safe storage is defined as placing tires or tire shreds in trenches and covering them with sheets of plastic and dirt. 	<ul style="list-style-type: none"> • Not addressed. 	<ul style="list-style-type: none"> • A 20% tax credit for recycling equipment purchases. • Market incentives from the Fund are administered by the Colorado Housing and Finance Authority. • Fund money may be loaned to local governmental entities but only if no private individual or entity in the geographic area served by the government entity is engaged in the waste diversion or recycling projects of waste tires. • At least 15% of the Fund is available to individuals or entities engaged in waste diversion or recycling programs in rural areas of the State. • No less than 30% of the Fund is available for new businesses to be used for startup costs, and no more than 34% may be awarded to a single individual or entity. Moneys provided must not be the sole source of funding. 	

CONNECTICUT

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
Carey Hurlburt State of Connecticut Department of Environmental Protection Waste Management Bureau Planning and Standards Division 79 Elm Street Hartford, Connecticut 06106-5127 Telephone: 860-424-3248 FAX: 860-424-4081	<ul style="list-style-type: none"> Guidelines for Rubber Tire Storage Areas (1978-80). Tires are managed as a special waste under the Connecticut General Statutes, which became effective February 1985. The State Mandatory Recycling Act designates tires as future recyclables. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Any tire handler must comply with the regulations set out in the Connecticut General Statutes.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Tire storage facilities must be licensed by the Department of Environmental Protection. Requirements include ground water protection, environmental health and safety provisions and financial assurance. 	<ul style="list-style-type: none"> Tires may be accepted at landfills until there are sufficient facilities with tire recycling capabilities in the State. 	<ul style="list-style-type: none"> State has a 10% price preference for products made from recycled materials. 	<ul style="list-style-type: none"> A 300 ton/day scrap tire-to-energy facility is now operating in the town of Sterling. In 1991, tires began to be diverted from landfills to a waste-to-energy facility in the State. The facility operates in Sterling, CT, and is burning approximately 106,600 tons (10 million tires) annually.

DELAWARE

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Janet Manchester Delaware Department of Natural Resources and Environmental Control Division of Air and Waste Management Solid Waste Management Branch 89 Kings Highway P.O. Box 1401 Dover, Delaware 19903 Telephone: 302-739-3820 FAX: 302-739-5060 Web site: http://www.dnrec.state.de.us E-mail: jmanchester@dnrec.state.de.us</p>	<ul style="list-style-type: none"> No scrap tire legislation at the present time. However, tires are being managed as either a solid waste or recyclable material under existing solid waste regulations. New Regulation (1997) prohibits outdoor storage of tires without first obtaining a permit from the State Fire Marshal's office. (See Delaware State Fire Prevention Regulations, Part VI, Chapter 5.) 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Scrap tire haulers are not required to be permitted or registered. Tire haulers are exempt from the \$300 fee for solid waste transporters.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Permit must be obtained from State Fire Marshal for outdoor storage. 	<ul style="list-style-type: none"> The State's three sanitary landfills are permitted to accept tires for landfilling provided that the tires are shredded or split. Whole tires in excess of 10 per truckload are prohibited from being landfilled. 	<ul style="list-style-type: none"> The State's Green Industries Initiative provides tax incentives and/or low interest loans to business and industry to use recycled materials in manufacturing or to process recyclables. To date, two loans have been given out under this program, including one to a crumb rubber operation. 	<ul style="list-style-type: none"> The landfills have implemented a tipping fee of \$95 per ton for whole tires, which they divert to a tire-to-energy facility. Shredded and sliced tires are accepted at the regular tipping fee of \$58.50 per ton.

FLORIDA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Bill Parker State of Florida Department of Environmental Protection Solid Waste Section MS-4565 Twin Towers Office Building 2600 Blair Stone Road Tallahassee, Florida 32399-2400 Telephone: 904-488-0300 FAX: 904-414-0414 E-mail: parker_b@dep.state.fl.us</p>	<ul style="list-style-type: none"> SB 1192, enacted in 1988, is the Solid Waste Act. Scrap tires are addressed by the Act. Section 62-711 of the Florida Administrative Code defines terms and contains rules for handling and disposing of waste tires. 	<ul style="list-style-type: none"> A \$1/tire tax on the retail sale of new tires. Retreads are exempt. 	<ul style="list-style-type: none"> Waste tire collectors must be registered with the Department of Environmental Protection. Collection centers must have a permit.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Waste tire sites must be closed or located at a permitted facility. Processing or disposal facilities, collection centers, and mobile operators must have a permit. 	<ul style="list-style-type: none"> Tires must be cut into at least eight pieces prior to landfilling. 	<ul style="list-style-type: none"> Counties receive grants that can be used to buy products made from waste tires. 	<ul style="list-style-type: none"> Florida Department of Transportation specifies rubber modified asphalt for all surfacing contracts. Waste tires are used as fuel in cement kilns, power plants, and paper mills. Shredded tires are used above the liner in landfill construction.

GEORGIA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Denny Jackson Scrap Tire Management Program Georgia Department of Natural Resources 4244 International Parkway Suite 104 Atlanta, Georgia 30354 Telephone: 404-362-4500 FAX: 404-362-2693 E-Mail: denny_jackson@mail.dnr.state.ga.us Web site: http://www.dnr.state.ga.us</p>	<ul style="list-style-type: none"> • HB 1385, a recycling amendment to the 1990 State Solid Waste Management Act that includes tires, was passed in May 1992. • Georgia's Waste Tire Committee and regulators from the EPD have written proposed carrier and generator rules required by HB 1385. They were promulgated in December 1992 and were effective January 1993. 	<ul style="list-style-type: none"> • As of July 1, 1992, there is a \$1/tire management fee on the sale of new passenger and truck tires. 	<ul style="list-style-type: none"> • HB 1385 requires generators of scrap tires to obtain an identification number. Carriers must obtain permits including financial assurance. • HB 1385 establishes a manifest/tracking system for scrap tires. • Retail dealers must keep accurate records and report to the EPD quarterly on the number of new replacement tires sold.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • No one may store more than 100 scrap tires anywhere in the State. Exceptions include: <ul style="list-style-type: none"> - Solid waste disposal sites with a permit to store scrap tires prior to disposal; - Tire retailers, if the number of scrap tires stored is under 3,000; - Tire retreader with not more than 1,500 scrap tires, if the tires will be retreaded; - Auto salvage yards with not more than 500 scrap tires in storage. • Storage and processing facilities must comply with pile dimension requirements. • Processors of scrap tires must recycle 75% of incoming tires per quarter. 	<ul style="list-style-type: none"> • Since January 1, 1995, whole tires have been banned from landfills. Shredded or chopped tires can be landfilled if no other end markets are available. 	<ul style="list-style-type: none"> • Monies generated by the state fees are used for: <ul style="list-style-type: none"> - Scrap tire abatement projects by State contractors; - Grants to local governments for enforcement and educational programs; - Reimbursements to local governments for scrap tire recycling events; - Reimbursements to local governments for scrap tire pile cleanup projects; - Grants to universities and governmental agencies for innovative technology development. 	<ul style="list-style-type: none"> • The EPD is gathering information on the locations and number of tires in unpermitted tire stockpiles in the State. • Criteria for scrap tire dump abatement were developed in 1993.

HAWAII

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>John Harder Hawaii Department of Health Office of Solid Waste Management Suite 210 919 Ala Moana Boulevard Honolulu, Hawaii 96813 Telephone: 808-586-4240 FAX: 808-586-7509</p>	<ul style="list-style-type: none"> Effective July 1, 1994, Chapter 342I, Hawaii Revised Statutes (H.R.S.) prohibits the disposal of whole used motor vehicle tires at all landfills and incinerators within the State of Hawaii. Tire retailers are required to accept used tires in exchange for new ones purchased. There is no tax on the retail sale of tires. 	<ul style="list-style-type: none"> To date there is no tire advance disposal fee. 	<ul style="list-style-type: none"> No specific regulations.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Tire storage, shredding and processing facilities are now required to seek permit approval as described in Hawaii Administrative Rules Title 11, Chapter 58.1, "Solid Waste Management Control." 	<ul style="list-style-type: none"> Since July 1, 1992, whole tires have been banned from landfills and incinerators within the State of Hawaii. 	<ul style="list-style-type: none"> The Department of Accounting and General Services has finalized (under legislative direction) its procurement rules and specifications. They include a 10% preference for products made with recycled materials, including retread tires. The rules were promulgated by mid-1993. 	<ul style="list-style-type: none"> Shredded tires are sold to a coal plant for use as fuel.

IDAHO

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Todd Montgomery State of Idaho Division of Environmental Quality (DEQ) 1410 North Hilton Street Boise, Idaho 83720 Telephone: 208-373-0464 FAX: 208-373-0417</p>	<ul style="list-style-type: none"> HB 352, passed in March 1991, addressed acceptance of scrap tires, collection sites, and disposal of scrap tires. 	<ul style="list-style-type: none"> A \$1/tire fee on the retail sale of motor vehicle tires, established as part of HB382, sunsetted June 30, 1996. 	<ul style="list-style-type: none"> No specific regulations. Tire sellers must accept a number of scrap tires from consumers for disposal/recycling equal to the number of tires sold/year. Scrap tire collection sites must register with the DEQ.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> An owner or operator of a waste tire collection site must register with the Division of Environmental Quality and provide information concerning the site's location and size and the approximate number of waste tires that are stored at the site. 	<ul style="list-style-type: none"> Disposal of tires at landfills and incineration sites is banned (except as allowed under permissible fuel uses), effective July 1, 1993. Since January 1, 1993, tires must be disposed of at scrap tire collection sites. Each county was required to establish a program addressing waste tire disposal by October 1, 1992. 	<ul style="list-style-type: none"> The Waste Tire Grant program is no longer in existence. 	

ILLINOIS

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>General Alan Justice State of Illinois Department of Commerce and Community Affairs (DCCA) Bureau of Energy and Recycling 325 West Adams Room 300 Springfield, Illinois 62704-1892 Telephone: 217-785-3999 FAX: 217-785-2618</p> <p>Regulations and Cleanup Paul Purselove Illinois EPA Bureau of Land 1001 North Grand Avenue East Springfield, Illinois 62702 Telephone: 217-524-5597 FAX: 217-524-1991</p>	<ul style="list-style-type: none"> HB 1085 (PA 86-452), enacted August 31, 1989, amended the Environmental Protection Act to create the Used Tire Management Program. Financial assistance can be provided to local governments for cleanup of tire piles, development of markets for tire-based products, and regulations to control mosquito infestations in tire piles. SB 989 (PA 87-727), enacted September 23, 1991, further amended the Environmental Protection Act by establishing a new fee on tires sold, setting priorities for how monies generated are earmarked, requiring tire retailers to accept used tires for recycling, and requiring the development and implementation of a plan to eliminate large tire piles. The Act also created a waste management hierarchy for used tires generated. HB 1159 (PA 87-476) enacted September 13, 1991, amended the Civil Administrative Code of Illinois by requiring the Illinois Department of Central Management Services to develop and implement a program to use retreads as replacement tires on State-owned vehicles whenever possible. Title 14, Section 55.8(c), of the Illinois Environmental Protection Act authorizes retailers to enter agreements with their suppliers to have the supplier remit the \$1/tire fee collected to the State. The State has regulations that apply to generators, transporters, and processors of used and waste tires. The regulations are Part 848 of the Illinois Pollution Control Board's regulations. 	<ul style="list-style-type: none"> Since July 1, 1992, any person offering tires at retail sale in Illinois must collect a fee of \$1/tire sold and delivered in the State. After collection allowances are paid to the retailer and the Illinois Department of Revenue, \$0.80 of each dollar is deposited into the Used Tire Management Fund. Approximately \$7 million is expected to be generated annually. 	<ul style="list-style-type: none"> Final rules for licensing scrap tire transporters were finalized in 1990. Since July 1, 1992, any person offering tires for retail sale must accept for recycling one used tire for every tire sold. Since July 1, 1992, any person offering tires for retail sale in Illinois must post a written notice that includes the universal recycling symbol and the following statement: "DO NOT put used tires in the trash"; "Recycle your used tires"; and "State law requires us to accept used tires for recycling, in exchange for new tires purchased." Any retailer that collects used tires for recycling under PA 87-727 may not allow the tires to accumulate for a period of more than 90 days.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Since April 1991, scrap tire storage facilities are requested to limit tire pile size, and ensure that water does not accumulate in tires. Site owners must maintain daily records of tires received and/or processed. Sites with more than 5,000 tires are required to have financial insurance to cover the cost of site cleanup. Since January 1992, processors have been regulated. Provisions include ensuring that tires are processed in a manner that prevents water accumulation. Since January 1, 1992, no one can operate a tire storage site containing more than 50 used tires unless the site has been registered with the Illinois Environmental Protection Agency. Registered sites must report the number of tires accumulated, the status of vector control, and the actions to handle and process the tires. 	<ul style="list-style-type: none"> Since July 1, 1994, whole tires are banned from landfills. 	<ul style="list-style-type: none"> A portion of the money generated from the \$1/tire fee imposed by PA 87-727 will be available to the Illinois DCCA to provide manufacturing/processing grants and loans, procurement/demonstration grants, research/development grants, and marketing grants. The Illinois DCCA Used Tire Recovery Program awards grants and low interest loans to expand existing used tire processing facilities in the State and to promote beneficial end uses of tires. For example, the Program has provided funding to: <ul style="list-style-type: none"> Waste Recovery - Illinois for the purchase of equipment to process scrap tires into tire-derived fuel; Laidlaw Waste Systems, Inc. to build a roadway with waste tire-derived material as an insulating road base; Over 100 schools, colleges and universities to assist in the purchase of outdoor, all-weather running tracks made from tire-derived material; Construct, with tire-derived materials, over 150 playgrounds and over 40 horse arenas; Illinois Cement Company to purchase a feeding system to introduce whole tire-derived fuel into their cement kiln. 	<ul style="list-style-type: none"> The Illinois Environmental Protection Agency (EPA) may allow, on a case-by-case basis, the use of alternative materials, including shredded tire material, to serve as a daily cover at sanitary landfills. Illinois has an active tire cleanup program. The State will remove up to 1,000 tires from private property at no expense provided the property owner agrees to no further accumulations. The State has a law, Section 55.3 of the Illinois Environmental Protection Act, that allows EPA to order a property owner to remove tires from his or her property and follows up with a State removal and cost recovery if the owner is unwilling or unable to comply. The Illinois EPA averages 100 cleanups each year, with 1.5 to 2 million tires removed from open dumps yearly.

INDIANA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p><u>General</u> Debby Baker Indiana Department of Environmental Management (DEM) Office of Solid and Hazardous Waste 100 N Senate Avenue P.O. Box 6015 Indianapolis, Indiana 46206-6015 Telephone: 317-232-0066 FAX: 317-232-3403</p> <p><u>Market Incentives</u> Jose Evans Energy Policy Division Indiana Department of Commerce One N. Capitol Avenue, Suite 600 Indianapolis, Indiana 46204 Telephone: 317-232-8951 FAX: 317-232-8995</p>	<ul style="list-style-type: none"> • HB 1391, signed into law March 1990, established regulations on the disposal of lead acid batteries and waste tires. • HB 1056, an act amending HB 1391, was passed in 1990. When HB 1056 sunsetted, it was replaced by HB 1047, which requires that rules be written on tire storage and transport. HB 1047 also extended the life of the Waste Tire Task Force. • PL 19, passed in 1990, created the Waste Tire Management Fund and established a price preference for recycled materials, including retread tires. • PL 236, passed in 1991, affects tire retailers, wholesalers, haulers, and processors. Haulers must comply with 329 Indiana Code (IAC) 12-6. Processors must comply with 329 IAC 12-5. • PL 88, passed in March 1992, set up a registration system for storage of waste tires. Storage sites must comply with the registration and operational requirements of 329 IAC 12-5. • Article 15 for waste tire management is expected to be promulgated in 1999. 	<ul style="list-style-type: none"> • As of July 1991, a waste tire management fund was created. <ul style="list-style-type: none"> - 35% is for removal and disposal of improperly disposed tires and for operating the waste tire education program and to pay administrative expenses; - 65% assists the Department of Commerce to provide grants and loans to people involved in waste tire management activities and to pay administrative expenses. • The fund is supported by a \$0.25 fee assessed on each new tire sold in Indiana and is administered by the Indiana Department of Environmental Management. 	<ul style="list-style-type: none"> • Provisions and permit fee amounts have been established for registering scrap tire haulers. • Tire retailers are required to post a notice in the establishment advising customers that the retailer is required to accept the customers' used tires for recycling. • Retailers must retain one used tire for each new tire sold. • A manifest form is required for shipment of scrap tires from a generator to a disposal or processing facility. • Haulers transporting more than 20 scrap tires in Indiana must register with IDEM and comply with the requirements of 329 IAC 12-6, which includes manifesting.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • A permit is required for scrap tire storage facilities. • Most facilities that cut, shred or grind tires are required to be registered as a waste tire processing facility. The following facilities are not required to be registered: <ul style="list-style-type: none"> - A generator (tire dealer, auto salvage yard) that only processes tires generated by its business; - A facility registered as a waste tire storage facility. - A mobile shredder that only processes tires at the site of generation; - A tire recapper. 	<ul style="list-style-type: none"> • IAC 13-20-14 states that "A whole waste tire may not be disposed of at a solid waste landfill after July 1, 1995." • IDEM has determined how a tire may be altered so it is no longer a whole tire and thus may be disposed of into a solid waste landfill. <ul style="list-style-type: none"> - A tire which has the sidewalls cut and the remaining tread intact, resulting in three pieces (two sidewalls and the tread); or - A tire which has been cut, at a minimum, into four (4) relatively equal pieces. The tire can be laid on its side and cut like a pie through the bead and tread into four pieces. Both sidewalls can be cut out of the tire and the remaining tread cut into two relatively equal pieces. The tire may be split in half along the center of the tread (a bagel cut) and the resulting two pieces each cut in half. Each landfill site may require additional processing or may refuse to accept any tire material. 	<ul style="list-style-type: none"> • The Indiana Dept. of Commerce Energy Policy Division (EPD) administers the Recycled Tire Product Procurement Grants Program, established January 1995, which awards grants of up to \$40,000 for Indiana local and state government agencies to purchase products made from recycled Indiana scrap tires to promote and demonstrate the use of products made from recycled scrap tires. Grantees must provide a minimum of 50 percent of the total project cost. • EPD administers the Recycled Tire Product Marketing Grants Program, established January 1995, which awards grants of up to \$20,000 for Indiana businesses to promote and market products made from recycled scrap tires. Grantees must provide a minimum of 50 percent of the total project cost. • EPD administers the Tire-Derived Fuel Testing Grants Program, established January 1995, which awards grants of up to \$30,000 for utilities, pulp and paper mills, cement kilns, and other operations with appropriate pollution control equipment to test the use of tire-derived fuel in their operations. Grantees must provide a minimum of 50 percent of the total project cost. 	

IOWA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Mel Pins State of Iowa Department of Natural Resources (DNR) Waste Management Assistance Division 502 East Ninth Street Henry A. Wallace Bldg. Des Moines, Iowa 50319-0034 Telephone: 515-281-8489 FAX: 515-281-8895</p>	<ul style="list-style-type: none"> House File 753, the Waste Management and Recycling Act, was passed in 1989. A portion of the Act addresses waste tire disposal. House File 706, Registration of Waste Tire Haulers, was passed in 1990. House File 2433, establishing a Waste Tire Management Fund, was passed in 1996. The fund provides a total of \$15 million over six fiscal years, 1997-2002, for a variety of waste tire related programs, including grant funding for county waste tire collection and management programs, incentive grants for eligible waste tire processors located within the State, grants to the three State universities to encourage the use of tire-derived fuel, and funds for the abatement of nuisance stockpiles. In conjunction with requirements set forth in HF2433, the Department is currently developing administrative rules defining beneficial uses of whole or processed waste tires, including uses related to civil engineering practices, erosion control, and agricultural practices. 	<ul style="list-style-type: none"> The 1996 legislation provided for the reallocation of a portion of an existing \$5 surcharge, which is collected at the time of a motor vehicle title issuance or transfer, to the Waste Tire Management Fund for fiscal years 1997-2002. The Landfill Alternatives Financial Assistance Program (passed as part of the 1987 Iowa Ground Water Protection Act) is funded by a tonnage fee (a surcharge on all wastes), paid in addition to a tipping fee, at landfills. 	<ul style="list-style-type: none"> HF 706 requires that waste tire haulers register with, and obtain a certificate of registration from the Secretary of State's Corporations Division Office. A \$10,000 surety bond is required of each hauler to be registered. "Waste tire hauler" means a person who transports for hire more than 40 waste tires in a single load for commercial purposes. Haulers are liable for any costs associated with improper disposal of tires. Generators of scrap tires must contract with a registered hauler for removal of scrap tires. Transporters of scrap tires for final land disposal are required to dispose of the tires at permitted sanitary disposal facilities.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> HF 2475 established permitting requirements for waste tire storage and processing facilities. The requirements include a permit fee and a financial assurance instrument and apply to facilities with more than 500 tires. House File 228, passed in 1997, allows authorized vehicle recyclers to store or collect up to 3,500 waste tires without a waste tire storage permit. House File 653, also passed in 1997, provided that all requirements for financial assurance became effective July 1, 1998. 	<ul style="list-style-type: none"> Since July 1, 1991, disposal of whole tires in landfills is banned. Tires must be processed by, at a minimum, shredding, cutting, or chopping into pieces that are no longer than 18 inches on any side. Disposers of waste tires must contract with a registered hauler for removal of waste tires. 	<ul style="list-style-type: none"> The Landfill Alternatives Financial Assistance Program provides funding for source reduction and recycling projects. Since 1988, nine projects for scrap tire management have received funding. House File 2433 provides eligible waste tire processors located within the State a grant of up to \$20,000 annually, as an incentive to encourage such processors to lower the rates at which they sell processed waste tire materials. The Waste Tire Management County Grant Program has been established in conjunction with HF2433. The program provides competitive grant awards to counties for the implementation of waste tire collection and management programs at the local level. An average of \$1 million is available annually for the program, with grant funds to be used for waste tire collection and processing fees, an educational component to the program, and promotional and administrative expenses. 	<ul style="list-style-type: none"> As mandated in HF2433, the Department began implementing a Waste Tire Stockpile Abatement Program in fiscal year 1998. The program will provide the Department with funding in order to contract for the removal and abatement of approximately 6 million waste tires, contained in over 60 stockpiles statewide. As of 1998, one cement kiln, one industrial plant, and one State university use tire-derived fuel (TDF) as a supplement to their primary fossil fuel resources. An in-state processor also manufactures agricultural equipment bushings from bias-ply tire casings. A second state university will begin using TDF in 1999. A private boiler is to have conducted a test burn of TDF in 1998 and, if successful, may permanently use TDF.

KANSAS

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Joe Cronin Kansas Department of Health and Environment Bureau of Waste Management Forbes Field, Building 740 Topeka, Kansas 66620 Telephone: 913-296-1667 FAX: 913-296-1592</p>	<ul style="list-style-type: none"> Kansas Statutes Annotated 65-3424 through 65-3424m and Kansas Administrative Regulations 28-29-28 through 28-29-33 pertain to waste tire management. 	<ul style="list-style-type: none"> An excise tax of \$0.50 on the retail sale of new tires. An estimated \$1.2 million per year in tire fund revenues will be used for grants to local governments and program administration. Excise tax will be reduced to \$0.25 per tire on July 1, 2001. The Waste Tire Management Fund was established in 1990 to provide grants to cities and counties for scrap tire recycling, management, collection, and disposal operations and to enforce laws relating to collection and disposal fees. 	<ul style="list-style-type: none"> Waste tire transporters are required to have permits and provide financial assurance.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Permit requirements for waste tire processing facilities, mobile waste tire processors, and collection centers include zoning and site plans, a management/operation plan for the site containing information on the number of tires to be processed, type of processing to be used, a contingency plan for fire or other emergencies, proof of ownership of site, a closure plan, financial assurance, pile size limitations, and site operation standards. 	<ul style="list-style-type: none"> As of July 1, 1990, whole tires are banned from disposal in landfills. Tires, if cut sufficiently small, may be disposed of in landfills. Tires may be disposed of only in permitted disposal facilities. After July 1, 1999, tire disposal only in permitted monofills. 	<ul style="list-style-type: none"> The first municipal grants issued through the Waste Tire Management Fund were awarded in 1993. The only market stimulation grant to develop waste tire recycling markets was awarded in 1997. The amount of the grant was \$400,000. No additional funds are available. 	<ul style="list-style-type: none"> Whole tires may be used as part of a proven and approved leachate collection system. Cut tire chips may be used as daily landfill cover material. Beneficial uses must be approved in writing by the Kansas Department of Health and Environment.

KENTUCKY

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Charles Peters Kentucky Department of Environmental Protection Division of Waste Management 14 Reilly Road Frankfort, Kentucky 40601 Telephone: 502-564-6716 FAX: 502-564-4049</p>	<ul style="list-style-type: none"> HB 636, passed in April 1998, specifically addresses the management of waste tires. 	<ul style="list-style-type: none"> There is a \$1/tire tax on the retail sale of new replacement tires. A waste tire fund was established for the cleanup of tire piles and for market development. 	<ul style="list-style-type: none"> Accumulators, transporters, and processors must register and post bond. Tire retailers and accumulators can transfer waste tires only to registered transporters or authorized facilities. Receipts are required. No person can accumulate more than 100, transport more than 50, or process more than 25 waste tires without registering with the Kentucky Department of Environmental Protection (DEP).

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> No person can accumulate more than 100 or process more than 25 waste tires without registering with the DEP. Management standards for accumulators, including access for firefighting equipment and prevention of the entrapment of water. 	<ul style="list-style-type: none"> Only tires "rendered suitable for disposal" may be disposed of in landfills. 	<ul style="list-style-type: none"> Sales tax exemption on recycling equipment. Tax credit on recycling equipment. 	<ul style="list-style-type: none"> A cement plant is burning tires for fuel.

LOUISIANA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Karen Fisher-Brasher Louisiana Department of Environmental Quality Office of Solid and Hazardous Waste P.O. Box 82178 Baton Rouge, Louisiana 70884- 2178 Telephone: 504-765-0249 FAX: 504-765-0299 E-mail: karen_f@deq.state.la.us Web site: www.deq.state.la.us</p>	<ul style="list-style-type: none"> Act 185, a solid waste recycling and reduction law affecting scrap tires, was passed in 1989, and became effective January 20, 1992. The Department of Environmental Quality formulated regulations for scrap tire recycling in accordance with Act 185. The current regulations include: <ul style="list-style-type: none"> Manifest and reporting requirements; Site notification requirements; Permitting requirements for transporters and waste tire collection storage, recycling and disposal sites; Outdoor/indoor storage requirements; Tire dealer responsibilities; and Provisions for a \$2/tire fee on retail sale. 	<ul style="list-style-type: none"> A \$2/tire fee on retail sales became effective February 1992. Notification and permitting fees are specified in the regulations. A portion of the waste tire management fund is used to pay for the cleanup of waste tire piles around the State. 	<ul style="list-style-type: none"> Permit fees have been established for tire haulers, collectors, and processors. The retailers are required to post a notice in their establishment advising customers that the retailer is required to accept the customers' tires for recycling. Customers are required to pay the disposal fee whether they leave the waste tire or take it with them. Retailers may not refuse to take one used tire for each new tire sold. The period of time over which collection/processing facilities can retain whole tires is limited.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> As of January 1990, tires must go to a permitted recycling or solid waste disposal facility or to waste tire collection sites. Permit fees have been established for processors. 	<ul style="list-style-type: none"> Since January 1, 1991, whole tires cannot be disposed in landfills. They must be cut or shredded prior to disposal. 	<ul style="list-style-type: none"> A portion of the waste tire management fund is used to pay for the cleanup of waste tire piles around the State. A 5% price preference for State purchases of supplies that meet recycled content requirements. Tax credits equal to 20% of the cost of recycling equipment may be used to process recyclables or to manufacture materials using recycled feedstock. 	

MAINE

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>James Glasgow State of Maine Department of Environmental Protection (DEP) Bureau of Remediation and Waste Management 17 State House Station Augusta, Maine 04333 Telephone: 207-287-2651 FAX: 207-287-7826 E-mail: jims.glasgow@state.me.us</p>	<ul style="list-style-type: none"> LD 1431, passed in 1989, established a funding source for scrap tire management activities. It went into effect January 1990. Chapter 406 of the State Solid Waste Management Plan contains requirements for proper storage or disposal of scrap tires and the licensing of storage and processing facilities. The rules that apply to tire storage facilities include provisions for surface and groundwater protection. The Tire Stockpile Abatement Law, enacted in 1991, gives DEP authority to investigate uncontrolled tire stockpiles, gives enforcement authority to DEP to require owners/operators of such sites to clean up the sites, and contains provisions concerning assignment of liability and State authority to recover funds. 	<ul style="list-style-type: none"> A \$1/tire advance disposal fee paid on the retail sale will fund tire pile cleanup and scrap tire recycling grant and loan programs. \$5 million bond for stockpile disposal passed by referendum in 1996. A \$2.5 million contract has been awarded for the remediation of a stockpile containing approximately 20 million tires. 	<ul style="list-style-type: none"> As of April 1, 1991, scrap tire haulers are required to be licensed, meet manifest requirements, and show financial responsibility.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> A permit is required if the tire storage area is greater than 10,000 square feet. Permit requirements decrease for storage areas less than 10,000 square feet. Exemptions are possible for short-term storage and for temporary use of portable tire shredders. All scrap tire storage facilities are covered under State solid waste processing and disposal regulations, and have the same siting restrictions. A permit is required for scrap tire processing facilities. 	<ul style="list-style-type: none"> No whole tires in landfills. 	<ul style="list-style-type: none"> The State requires the purchase of recycled materials if it is feasible and environmentally sound. This includes retread tires, chipped tires for road fill, and rubberized asphalt. 	<ul style="list-style-type: none"> A report by the Department of Transportation (DOT) was submitted to the legislature in March 1990. The subject was the use of ground tire rubber as an additive to asphalt concrete. A DOT recycling project was established. It included a comprehensive review of feasible alternatives for using recyclable materials in construction. Ground rubber from tires was one of several materials specifically identified in the study. Pulp and paper mills have been licensed to burn 40,000 tons per year of tire-derived fuel. 17,000 tons of tire chips have been used as lightweight fill in road construction in 1996-97.

MARYLAND

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Regulatory/Cleanup Mary C. Richmond Maryland Department of the Environment (MDE) Waste Management Administration Recycling Service Division 2500 Broening Highway Building 40 Baltimore, Maryland 21224 Telephone: 410-631-3315 FAX: 410-631-3842</p> <p>Demonstrations/Recycling Rhody Holthaus Maryland Environmental Services Department of Natural Resources 2011 Commerce Park Drive Annapolis, Maryland 21401 Telephone: 410-974-7254 FAX: 410-974-7236</p>	<ul style="list-style-type: none"> HB 1202, the Scrap Tire Recycling Act enacted in 1991, regulates the proper disposal of scrap tires. Requires licensing of scrap tire recycling, collection, hauling, and tire-derived fuel operations. Establishes a mechanism for the cleanup of scrap tire stockpiles. Sets a fee of \$1/tire on new tire sales to fund the Scrap Tire Program. COMAR 26.04.08 (1992) contains regulations covering storage, collection, transferring, hauling, recycling, and processing of scrap tires. 	<ul style="list-style-type: none"> Maryland's Scrap Used Tire Cleanup and Recycling Fund was created by law. Funds are generated from collection of the fee, penalties and cost recovery. As of February 1, 1992, the State has a tire recycling fee of up to \$1 to be collected by retail tire dealers on the sale of a new tire in the State, including new tires sold as part of a new or used vehicle. Dealers keep 1.2% of the gross amount of the fee collected and give the remainder to the Comptroller of the Treasury, who transfers these fees to the Used Tire Cleanup and Recycling Fund. The Used Tire Cleanup and Recycling Fund is used for: <ul style="list-style-type: none"> Cleaning up existing stockpiles of used tires; Establishing a tire recycling system; Assisting tire recycling projects; Providing financial assistance to recycling companies; and Providing public education. 	<ul style="list-style-type: none"> Scrap tire collection facilities and haulers are required to obtain licenses. Three types of collection facility licenses are available: General license for 50 scrap tires at any given time, Secondary license for up to 1,500 tires, and Primary license for more than 1,500 tires at any given time. Licenses are issued for 5 years (except for General). Scrap tire hauler license applicants must submit the number of vehicles used to transport scrap tires; submit vehicle identification and tag numbers for each vehicle; provide map showing geographical area of service; identify all sites where tires will be collected, delivered or transferred; and maintain records on the origin, number, and destination of scrap tires hauled. Scrap tire collection facilities are required to provide: the maximum number of tires to be accumulated at a facility on a daily basis, and at any given time; general facility information and operation; scrap tire hauler information; and the final destination of the scrap tires. The technical and storage standard requirements may be applicable to collection facilities.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Scrap Tire Recyclers are required to obtain a license from MDE. Approvals are required for Tire-Derived Fuel and Solid Waste Acceptance Facilities. Licenses and Approvals are issued for 5 years. Scrap tire recycling operation must submit a complete proposal that includes detailed site plan, tire processing capacities, maximum quantity of tires at the facility, general facility information and operation, and documentation for the availability of tire product markets. The facility's ability to meet technical and operational standards for tire storage is required if facility plans to accumulate scrap tires in any form or configuration in excess of 15,000 cubic feet. Closure plans are also required for these operations. Tire-derived fuel facilities' requirements are similar to recycling facilities' except for market information. Solid waste facility approvals are granted by a modification to the facility's refuse disposal permit. 	<ul style="list-style-type: none"> Tires banned from all Maryland landfills after January 1, 1994. If dealers, recyclers, or collectors do not satisfy the requirements for selling or disposing of the tires, they are required to use a State-approved disposal system. The law allows the Secretary of the Environment to take remedial action and/or remove tires at any site if he or she determines disposal may be carried out improperly or in a way that threatens the environment. 	<ul style="list-style-type: none"> State has a 5% price preference for products containing recycled materials. Maryland Environmental Service Scrap Tire Management Program to date includes: <ul style="list-style-type: none"> Retreaded Tire Utilization Project; Remanufactured Tire Demonstration Project; Promoting the use of tire chips as a supplemental fuel in cement kilns; Researching the use of scrap tires in asphalt and in composting; Catalog of products issued to promote use of products manufactured of scrap tire material; Tire reef project. Four companies are currently participating in the Scrap Tire Recycling System. 	<ul style="list-style-type: none"> The Maryland Environmental Service (MES) is responsible for developing the statewide tire recycling system. This includes establishing regional collection centers and haulers. The MES is also setting up demonstration programs and distributing money from the Used Tire Cleanup and Recycling Fund. State completed a market study for recyclables, including tires, in 1990. As of 1998, eight scrap tire processing facilities are operating and accepting significant quantities of tires. These operations include four scrap tire recycling operations, three cement kilns that utilize tires as supplemental fuel, and one waste-to-energy facility. With the cooperation of State agencies and volunteers, MDE constructed five playgrounds using whole scrap tires in Calvert Cliffs and Tuckahoe State Parks. Landfill Cap Demonstration Projects using tire chips are in progress for Nicholson Road and Round Glade Landfills. These landfills are located in Kent and Garret Counties, respectively.

MASSACHUSETTS

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Judy Shope Commonwealth of Massachusetts Department of Environmental Protection (DEP) Recycling Division One Winter Street, 7th Floor Boston, Massachusetts 02108- 4747 Telephone: 617-292-5597 FAX: 617-292-5778</p>	<ul style="list-style-type: none"> • An Act to Protect the Environment and Public Health by Proper Disposal of Certain Automotive Wastes was reintroduced in 1992, attached to an omnibus recycling bill, but did not pass. • As of October 1997, the House Ways and Means Committee was considering a comprehensive scrap tire management bill. This legislation would set fees for retailers that would go to a dedicated fund for scrap tire programs and includes grants and education programs. • The Solid Waste Management Facility Regulations require that storage, collection, processing, and disposal sites meet permit criteria, such as proof of ownership; site location, topography, and wetlands impact; site and pile dimensions; number of tires received and processed; tire prevention plans; and security measures. 	<ul style="list-style-type: none"> • Recycling Loan Fund for tire reuse projects. 	<ul style="list-style-type: none"> • Massachusetts DEP does not regulate solid waste haulers. • Scrap tire collection facilities are exempt from solid waste regulations if the facility can demonstrate that the tires are being recycled or reused. • Collection sites must meet permit criteria.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • Storage and processing facilities are regulated as handling facilities, and must meet permitting criteria. • Processing facilities are exempt from solid waste regulations if the facility can demonstrate that the tires are being recycled or reused. 	<ul style="list-style-type: none"> • As of December 31, 1991, whole tires are banned from disposal in landfills. Tires must be shredded prior to disposal in landfills. • Disposal sites must meet permit criteria. 	<ul style="list-style-type: none"> • A 1988 Executive Order established 10% purchasing preference for buying recycled products or goods with recycled content. Initially targeted at paper, plastic, aluminum, and compost; the Executive Order allows a broader list at discretion of purchasing agent. • DEP staff working with an interagency group to establish a contract for the purchase of retread tires by State agencies. • Recycling Loan Fund is available for tire reuse projects—funded one \$150,000 loan to one tire processing facility. • Funded Massachusetts Highway Department (MHD) to increase its use of recycled products in transportation applications—included four applications of crumb rubber. 	<ul style="list-style-type: none"> • Successful test burn of tire chips conducted in 1996 at NE Power facility—Beneficial Use Permit (BUD) granted to co-combust with coal. • BUDs granted to use tire chips as landfill cover.

MICHIGAN

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Kyle Cruse Michigan Department of Environmental Quality (DEQ) Waste Management Division P.O. Box 30241 Lansing, Michigan 48909 Telephone: 517-335-4757 FAX: 517-373-4797 E-mail: crusek@deg.state.mi.us</p>	<ul style="list-style-type: none"> Part 169 of the Natural Resources and Environmental Protection Act (NREPA), 1994, P.A. 451, as amended (Part 169) <ul style="list-style-type: none"> A criminal statute provides for fines up to \$10/tire, 90 days in jail, and 100 hours of community service. Scrap tires, also subject to Part 115 of the NREPA, as solid waste if not managed in compliance with Part 169. <ul style="list-style-type: none"> Criminal, civil and administrative remedies. 	<ul style="list-style-type: none"> A \$0.50 tire disposal surcharge on each certificate of vehicle title. Moneys from the surcharge are deposited in the Scrap Tire Regulatory Fund, established to implement and enforce the scrap tire regulations and clean up "abandoned" scrap tires on public and private lands and tires accumulated at collection sites prior to January 1, 1991. 	<ul style="list-style-type: none"> Hauler must be registered in order to haul scrap tires. All scrap tire collection sites must register with the Department of Environmental Quality and pay a \$200/year registration fee. Uncovered tire collection sites with more than 500 scrap tires are regulated. Transportation records, on forms approved by the Department, are required from tire retailers and scrap tire haulers for each load transported. Required record includes generator, hauler, and destination information. Tire retailers must use registered scrap tire haulers for contracted tire removal.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Scrap tires must <u>not</u> be stored in piles greater than 15 feet in height, with horizontal dimensions no greater than 200 by 40 feet with 30 foot spacing between. Tires must not be stored within 20 feet of property line or within 60 feet of a building or structure. Tires must be covered, shredded, or sprayed to limit potential for mosquito breeding. Bond, in the form of Surety Bond, Irrevocable Letter of Credit, Certificate of Deposit or Cash, is required for all storage of tires to ensure removal. The minimum bond requirements are as follows: \$25,000/¼ acre for outdoor storage, \$2/square foot of indoor storage, and \$750/vehicle for storage in trailers. Collection sites with an accumulation over 100,000 tires must operate as a processor to facilitate recycling by at least shredding the tires. 	<ul style="list-style-type: none"> Tires may be landfilled at facilities licensed under Part 115 of the NREPA or stored in compliance with Part 169 (see Storage and Processor Regulations). 	<ul style="list-style-type: none"> A 10% price preference is available for recycled products. There is a tire recycling program that provides grants to clean up public and private tire collection sites that existed prior to 1991. Since 1993, \$2.7 million has been granted to public and private tire site owners to remove and recycle more than 2.25 million scrap tires. 	

MINNESOTA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Don Nelson Minnesota Pollution Control Agency Ground Water & Solid Waste Division 520 Lafayette Road St. Paul, Minnesota 55155-8621 Telephone: 612-296-8621 FAX: 612-296-9707 E-mail: donald.nelson@pca.state.mn.us Web site: http://www.pca.state.mn.us</p>	<ul style="list-style-type: none"> The Scrap Tire Law was passed in 1984. 	<ul style="list-style-type: none"> A \$4 tax on vehicle title transfers will be in place for 2 more years. The Agency also received \$200,000 in tire abatement funds for FY98-99. 	<ul style="list-style-type: none"> Transporter ID requirements and enforcement policies have been established and implemented. Tire retailers must accept as many scrap tires from a customer as tires are sold to that customer. Tire retailers may charge a disposal fee. Tire retailers may store up to 500 scrap tires without a storage permit. Tire retailers are required to use only scrap tire transporters that have a valid ID number from the State.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Landfills are exempt from scrap tire storage permits if they store no more than 10,000 waste tires. Permitted waste tire transfer facilities are allowed to temporarily store and transfer up to 10,000 scrap tires. Permitted processing facilities can temporarily store, for processing, up to 70,000 scrap tires. Permitted storage facilities can store up to 500,000 scrap tires. All facilities must provide financial assurance to ensure clean closure. 	<ul style="list-style-type: none"> Tires are banned from disposal in landfills. 	<ul style="list-style-type: none"> No funding for grants and loans. 	<ul style="list-style-type: none"> The Minnesota Pollution Control Agency published a study on leachate from the disposal of tires in 1990. Minnesota Department of Transportation and the University of Minnesota are testing rubberized asphalt. In 1998, the approximate end uses of waste tires from Minnesota processors are 75% as tire-derived fuel; 20% as lightweight fill material; and 5% as consumer products.

MISSISSIPPI

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Mark Williams Mississippi Department of Environmental Quality Special Waste Program Office of Pollution Control P.O. Box 10385 Jackson, Mississippi 39289-0385 Telephone: 601-961-5304 FAX: 601-354-6612 E-mail: mark_williams@deq.state.ms.us</p>	<ul style="list-style-type: none"> • SB 2985, a bill addressing the disposal of batteries, tires, and household hazardous waste, was passed in 1991. • Scrap tire transportation regulations were adopted December 19, 1991, and became effective in 1992. • Scrap tire management regulations were finalized and adopted in August 1992. The regulations include requirements for collection sites, processing facilities, and disposal sites and financial responsibility requirements for agriculture, erosion control, or other alternative uses of scrap tires. • SB 2985 may be amended in 1993 to reduce county governments' scrap tire management obligation. This would mean a reduction in funds available to counties. The original bill forced counties to develop a scrap tire management system for all scrap tires generated in the county. Of 82 counties, 72 have some type of system in place. • Scrap tire grant regulations became effective July 1, 1992, and establish eligibility and allocation of the Environmental Protection Trust Fund. • The 1997 Legislature included agricultural tires in the scrap tire program, including tractor tires. 	<ul style="list-style-type: none"> • A \$1/tire fee on the retail sale of tires. • The Environmental Protection Trust Fund has been established. 	<ul style="list-style-type: none"> • As of January 1, 1992, scrap tire haulers must be registered with the State and must renew such certification annually. • Tires may be deposited only at authorized collection, processing, or disposal points. • Transportation of tires must be certified by using State manifest forms and keeping records of transportation. • A scrap tire collection site permit must be obtained if you store more than 100 tires, unless you are a retail outlet where you can store up to 500 tires. • As of January 1, 1992, scrap tire haulers/collectors, generators and processors must maintain manifest records of the numbers of tires generated from a facility, transported and processed, reused or disposed. • Tires must be cut, sliced, or shredded to facilitate recycling or disposal. • Financial assurance required of processors and collectors.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • Collection, processing, and disposal sites must obtain authorization to operate from State DEQ. • Processors must maintain manifest records of the numbers of tires generated from a facility, transported and processed, reused or disposed. 	<ul style="list-style-type: none"> • Tires must be cut, sliced, or shredded prior to landfilling. • Landfill ban on all tires set for January 1, 2000. 	<ul style="list-style-type: none"> • Environmental Protection Trust Fund can allocate: <ul style="list-style-type: none"> - 30% for eligible counties and regional solid waste disposal authorities; - 25% for recycling and demonstration grants; - 20% for abatement of illegal stockpiles; - Remainder for public education and administration of the program. 	

MISSOURI

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Dan Fester Missouri Department of Natural Resources Solid Waste Management Program P.O. Box 176 Jefferson City, Missouri 65102 Telephone: 573-751-5401 FAX: 573-526-3902</p>	<ul style="list-style-type: none"> • SB 530, an omnibus solid waste bill passed in August 1990. Includes provisions for regulating tires. • HB 438, passed in August 1990, establishes purchase preferences. • SB 60-112 passed in August 1995. Includes more stringent provisions for regulating tires and redirects funding priorities. • Waste tire rules 10 CSR 80-8.010 (First Stage Permits), 10 CSR 80-8.020 (Collection Centers), 10 CSR 80-8.030 (Hauler Permits) and 10 CSR 80-8.040 (Storage Site Permits) became effective July 8, 1991. Waste tire grant rule 10 CSR 80-9.030 became effective June 7, 1993. • The following became effective December 30, 1997: waste tire rule 10 CSR 80-8.010 was rescinded; waste tire rules 10 CSR 80-8.020, 10 CSR 80-8.030, 10 CSR 80-8.040 and 10 CSR 80-9.030 were amended; waste tire rules 10 CSR 80-8.050 (Processor Permits), 10 CSR 80-8.060 (End-User Registration) and 10 CSR 80-9.035 (Contract Cleanups) are new rules. 	<ul style="list-style-type: none"> • There is a \$0.50 per tire fee on retail sales of new tires. Sixty-five percent of the funds collected are to be used for contract cleanups of tire dump sites. Five percent of the funds are to be used for grants for end users of waste tires. Five percent of the funds are to be used for solid waste education purposes and 25% of the fund is to be used to fund administrative costs of the waste tire program. 	<ul style="list-style-type: none"> • Waste tire haulers who haul for consideration are required to be permitted. • Tire retailers and wholesalers can store more than 500 tires but not for over 30 days and must use permitted haulers. Recordkeeping regarding the generation and disposition of the tires is required. • A hauler permit requires an annual \$100 permit fee. • Collection center may store up to 500 tires. • A collection center that hauls its own tires in vehicles driven by its own employees is not required to obtain a hauler permit. • A waste tire hauler must keep records of the number of tires collected, the number of tires delivered, and basic information about the facility that accepts the tires.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • Sites that store more than 500 tires must obtain a Waste Tire Site permit from the Department of Natural Resources. Since August 28, 1997, no new Waste Tire Sites are permitted unless they are located at a permitted waste tire processing facility. Waste Tire Storage Sites in existence prior to August 28, 1997, will not accept any quantity of additional waste tires unless the site is part of a processing or end-user facility or unless the site can verify that a number at least equal to the number of additional tires received was shipped to a processing or end-user facility within 30 days after the receipt of the additional tires. • Processing facilities must be permitted by the Missouri Department of Natural Resources. • End-user facilities must be registered by the Missouri Department of Natural Resources. • Recordkeeping and inventory limits are required for both processing and end-user facilities. 	<ul style="list-style-type: none"> • Whole tires are banned from disposal in landfills. 	<ul style="list-style-type: none"> • Waste tire fee funds are available to provide grants to businesses for demonstration projects and for capital expenditures for using waste tires as a fuel or in a product. • Contracts for nuisance abatement and resource recovery activities are authorized via statute and managed through the State bidding process. • Some funding is allocated for nonprofit organizations that voluntarily clean up waste tires in conjunction with cleaning up land or water resources for the disposal costs of the tires. 	<ul style="list-style-type: none"> • A waste tire rules advisory council on waste tires was established to assist in the development of waste tire rules and grant criteria.

MONTANA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Rick N. Thompson State of Montana Department of Environmental Quality Community Services Bureau Solid Waste Management Program 1520 E. 6th Avenue P.O. Box 200901 Helena, Montana 59620-0901 Telephone: 406-444-5345 FAX: 406-444-1374 E-mail: rithompson@mt.gov</p>	<ul style="list-style-type: none"> Scrap tires are regulated under the Montana Solid Waste Management Act and the Montana Motor Vehicle Recycling and Disposal Act and the associated administrative rules. Both Acts were passed in 1977. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Collection sites must be licensed as a solid waste management facility. Collected or stored scrap tires must be shielded from public view.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Scrap tire collection/storage facilities must be permitted and licensed as solid waste management facilities. Collected or stored scrap tires must be shielded from public view. Scrap tire disposal or resource recovery facilities licensed after July 1, 1997, must have financial assurance for closure. 	<ul style="list-style-type: none"> Tires are currently accepted at landfills. Some landfills are beginning to charge differential fees for whole versus split tires. 	<ul style="list-style-type: none"> A 25% tax credit is available to businesses for the purchase of recycling and processing equipment. Income tax credits are available to individuals and corporations procuring recycled products. State is instructed to purchase recycled products whenever possible, but it is not a mandate. 	

NEBRASKA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Ms. M.J. Rose State of Nebraska Department of Environmental Quality Integrated Waste Management Section P.O. Box 98922 Lincoln, Nebraska 68509-8922 Telephone: 402-471-4210 FAX: 402-471-2909</p>	<ul style="list-style-type: none"> • LB 163, a waste reduction and recycling bill, was passed in April 1990. • LB 1257, the Integrated Solid Waste Management Act, was passed in 1992. • LB 444, passed in 1993, created the first emphasis on scrap tire projects. • LB 1034 created the Scrap Tire Reduction and Recycling Incentive Fund and established scrap tire management laws in 1994. • LB 495 established new guidelines for grant funds to better promote cleanup of scrap tire piles and market development in 1996. 	<ul style="list-style-type: none"> • Since October 1990, there has been a \$1 tire fee on the retail sale of new tires. The fee also applies to new car sales. A second fee is assessed on the retail sales of tangible personal property. Proceeds from the two fees are deposited in the Waste Reduction and Recycling Incentive Fund for grants to political subdivisions for waste management projects to further the goals of the legislation. • In 1994, LB 1034 placed the revenue generated from the \$1 tire fee into a separate fund available for scrap tire projects only. The tire fee will remain in this separate fund until July 1, 1999, when it will go back into the original Waste Reduction and Recycling Incentive Fund. Scrap tire programs will continue to have a priority for funding after the scrap tire fund sunsets. • LB 1257 provided 50% of a \$1.25 per ton disposal fee collected on waste going to municipal landfills. This fee became part of the Waste Reduction and Recycling Incentive Grants Program. 	<ul style="list-style-type: none"> • LB 1034 requires scrap tire haulers, collectors, processors, and collection site owners to be permitted. Additional requirements include maintaining financial assurance for closure costs and submitting annual reports.
Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • Title 136—<u>Scrap Tire Management Rules and Regulations</u> established a maximum of 18 months for storage of any one scrap tire and no more than 300,000 scrap tires can be stored at any one site. Collection sites must also adhere to siting requirements as established by Title 153—<u>Nebraska State Fire Code Regulations</u>. 	<ul style="list-style-type: none"> • Since September 1, 1995, scrap tires have been banned from landfills unless processed into pieces 6 inches or smaller. Since September 1, 1998, scrap tires are now banned from landfills in any form. 	<ul style="list-style-type: none"> • Grant funding is available for scrap tire cleanup; for cost-sharing for processing, manufacturing, or civil engineering uses; for partial reimbursement for the purchase of tire-derived products; for studies; and for capital and startup costs for processing, manufacturing, collecting, or transporting tires. 	

NEVADA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Les Gould State of Nevada Division of Environmental Protection (NDEP) Bureau of Waste Management 333 West Nye Lane Carson City, Nevada 89706 Telephone: 702-687-4670 FAX: 702-687-6396</p>	<ul style="list-style-type: none"> Nevada Revised Statute (NRS 444.583), passed in 1991, required NDEP to develop a plan for managing waste tires. Accordingly, the plan was developed. In 1994, regulations [Nevada Administrative Code (NAC) 444A.200-444A.470], were promulgated that: <ul style="list-style-type: none"> Established permit requirements for waste tire management facilities; and Established registration/manifesting requirements for commercial haulers. NRS 444A.090 established a fee of \$1/tire sold at retail. 	<ul style="list-style-type: none"> There is a \$1/tire charge on new tires sold at retail. Funds are deposited in Solid Waste Management Account to implement State solid waste and recycling programs. 	<ul style="list-style-type: none"> Hauler regulations include registration and manifesting waste tires. Semiannual reporting.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Permits by Waste Tire Management Facility Permits program. Include operation and closure regulations. 	<ul style="list-style-type: none"> Whole tire disposal allowed subject to approval of Solid Waste Management Authority. 	<ul style="list-style-type: none"> A 10% price preference is given for recycled products manufactured in Nevada. A 5% price preference is given to all other recycled products. 	

NEW HAMPSHIRE

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Sharon Yergean New Hampshire Department of Environmental Services Waste Management Division 6 Hazen Drive Concord, New Hampshire 03301 Telephone: 603-271-2900 FAX: 603-271-2456</p>	<ul style="list-style-type: none"> Automotive Waste Disposal Law (HB 322-FN-A, Chapter 89-263) was passed in 1989. Solid Waste District Law (RSA 149-M:131) requires towns/districts to provide sites or access to sites for disposal of residents' tires. 	<ul style="list-style-type: none"> Towns are authorized to collect fees for the collection and disposal of town motor vehicle wastes including tires, batteries, and used oil. Towns may request the Office of State Planning to increase the town's fees if they prove insufficient to fund proper management of motor vehicle wastes under existing conditions. 	<ul style="list-style-type: none"> The transportation of tires, either whole or shredded, is required to be accomplished in such a manner as to prevent tire pieces or whole tires from blowing or falling onto the roadways.
Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Outdoor storage of tires at collection sites must be in accordance with height, width, fire lane, and berm specifications. 	<ul style="list-style-type: none"> Tires must be cut prior to landfilling. Tires may be disposed of by one of the following methods: <ul style="list-style-type: none"> Scrap tires may only be disposed of in a permitted facility after being shredded, filled, or split to prevent creeping; or No processing of scrap tires is required at facilities that are capable of processing whole tires. 	<ul style="list-style-type: none"> Not addressed. 	

NEW JERSEY

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Steven Rinaldi New Jersey Department of Environmental Protection Division of Solid and Hazardous Waste Bureau of Recycling and Planning P.O. Box 414 Trenton, New Jersey 08625-0414 Telephone: 609-984-3438 FAX: 609-777-0769 Web site: http://www.state.nj.us/dep/dshw/recycle</p>	<ul style="list-style-type: none"> The New Jersey Statewide Mandatory Source Separation and Recycling Act, passed in 1987, addresses tire management. Regulations at NJAC 7:26A address solid waste recycling and contain provisions relating to scrap tire recycling. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Transporters hauling solid waste must be registered with the State. Transporters hauling source-separated materials (e.g., tires) for recycling need not register.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Facilities that recycle tires are regulated as a recycling center through an approval process, rather than as a solid waste facility through a permitting process. Regulations regarding scrap tire processors and storage of scrap tires were adopted November 18, 1991, as part of general solid waste recycling regulations, and were updated on December 16, 1996. 	<ul style="list-style-type: none"> Tires must be taken to permitted solid waste facilities, approved tire recycling centers, or sites operating pursuant to an exemption from the recycling center approval process. 	<ul style="list-style-type: none"> Tires qualify for municipal recycling tonnage grant credits. Industries purchasing new recycling equipment may be eligible for low interest loans. Legislation and Executive Order require the procurement of recycled products. 	<ul style="list-style-type: none"> The State's Department of Transportation has conducted a number of demonstration projects that utilize various mixes of rubber-modified asphalt. The New Jersey Department of Treasury, in conjunction with the New Jersey Department of Transportation and New Jersey Department of Environmental Protection, issued a bid proposal for the furnishing of light truck/commercial retread tires and service to all State agencies, quasi-agencies and political participants in designated counties. As part of the bid, tire casings are to be picked up by the vendor and replaced with retreaded tires. Five vendors have been awarded contracts to provide this service. The U.S. Environmental Protection Agency funded scrap tire recycling demonstration project that New Jersey is overseeing will provide data about the costs associated with removing scrap tires from stockpiles into various end-market technologies. While this information will be specific to remediation through rubberized asphalt, artificial reef production and a process similar to pyrolysis, the three technologies being studied, it will provide very useful data that the New Jersey Department of Environmental Protection can use to recommend the most cost-effective and environmentally benign processes for which public funds can be expended in the remediation of tire piles in New Jersey. The New Jersey Department of Environmental Protection is currently exploring scrap tire stockpile remediation strategies. The use of inmate labor has been proposed by the New Jersey Department of Corrections as a cost-effective approach to such projects.

NEW MEXICO

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Jerry Bober New Mexico Environment Department Solid Waste Bureau 1190 St. Francis Drive P.O. Box 26110 Santa Fe, New Mexico 87502 Telephone: 505-827-2775 FAX: 505-827-2902 E-mail: jerry_bober@ nmenv.state.nm.us</p>	<ul style="list-style-type: none"> NMSA 1978 74-11-1 through 74-11-17, The Tire Recycling Act, passed in 1994. 20 NMAC 9.2, New Mexico Tire Recycling Regulations, effective September 1, 1995. Provisions: <ul style="list-style-type: none"> Established a tire disposal fee on vehicle registrations; Provide for a Rubberized Asphalt Fund; Provide for a Tire Recycling Fund; Exempt dairy farmers from waste tire storage rules; Provide for reimbursement for the cost of illegal tire dump abatement to Counties, Municipalities and Cooperative Associations; and Provide for the reimbursement for the costs of establishing tire recycling facilities. 	<ul style="list-style-type: none"> Funding is provided by an add-on fee to each vehicle registration: 55% is appropriated to the Tire Recycling Fund; 45% is appropriated to the Rubberized Asphalt Fund. 	<ul style="list-style-type: none"> All haulers must register with the Environment Department.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Only a permitted or registered Solid Waste Facility or a permitted Tire Recycling Facility is authorized to receive, collect, store and process scrap tires. A permit and registration is required for any person or facility that: <ul style="list-style-type: none"> Processes or recycles more than 1,000 scrap tires or PTEs per year; Applies for or receives compensation from the Tire Recycling Fund; Stores more than 250 scrap tires at any one time; Uses more than 250 scrap tires in a single civil engineering application. 	<ul style="list-style-type: none"> No person shall dispose of scrap tires in a place other than those places permitted or regulated under the Solid Waste Act. 	<ul style="list-style-type: none"> A 5% price preference is provided for products containing recycled content procured by State agencies. 	<ul style="list-style-type: none"> Split tires are used to contain landfill cell liners at the City of Albuquerque landfill. New Mexico's tire recycling program centers around the use of tire balers. Operational Tire Baling Centers: <ul style="list-style-type: none"> Grant County; Otero County; McKinley/Cibola Counties; Socorro; Las Cruces; Santa Fe; Bernalillo County; Eddy County. There is one permitted Tire Recycling Center: <ul style="list-style-type: none"> Southwest Tire Processors Rubberized Asphalt Projects: <ul style="list-style-type: none"> Approximately eight highway projects utilizing 135 tons of crumb rubber modifier were completed in 1997.

NEW YORK

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Chris Glander New York State Department of Environmental Conservation (DEC) Division of Solid & Hazardous Waste Bureau of Waste Reduction & Recycling 50 Wolf Road, Room 212 Albany, New York 12233-7253 Telephone: 518-457-3966 FAX: 518-457-1283 E-mail: christian.glander@ dec.milnet.state.ny.us</p>	<ul style="list-style-type: none"> State Regulations for Solid Waste regulate waste tire storage and processing facilities. An amendment to Chapter 226 (Section 27-0303) of the Environmental Conservation Law, passed in 1990, designated commercial waste tires as a regulated waste. Commercial waste tires are defined as waste tires that are transported for a fee for the purpose of reuse, recycling, or disposal. 		<ul style="list-style-type: none"> Transporters of commercial waste tires must register with the DEC.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Waste tire storage requirements depend upon number of waste tires stored. No person shall engage in storing 1,000 or more waste tires at a time without a permit. Storage permit requirements cover waste tire pile size, dimensions and fire controls. 	<ul style="list-style-type: none"> Disposal of whole tires in any landfill is prohibited. 	<ul style="list-style-type: none"> The Department of Economic Development administers low-interest loan and grant programs for tire recycling. The New York State Energy Research and Development Authority (NYSERDA) invests in projects to develop, demonstrate or evaluate innovative and energy-efficient equipment, technologies, processes and other methods for managing all types of solid waste. 	

NORTH CAROLINA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Ernest Lawrence State of North Carolina Department of Environment, Health, and Natural Resources (DEHNR) Solid Waste Section, Division of Waste Management 401 Oberlin Road, Suite 150 P.O. Box 27687 Raleigh, North Carolina 27605- 1350 Telephone: 919-733-0692, ext. 274 FAX: 919-733-4810 E-mail: lawrenceeg@ wastenot.ehnr.state.nc.us Web site: http://wastenot.ehnr.state.nc.us</p>	<ul style="list-style-type: none"> • SB 111, passed in 1989, requires each county to provide a place for disposal of scrap tires. • Tires presented for disposal must be accompanied with a scrap tire certification form signed by generator and hauler. 	<ul style="list-style-type: none"> • As of January 1, 1990, a 1% tax on new tire sales was levied. The fee was increased to 2% for tires less than 20 inches in 1993. Major portion of the fund goes to: <ul style="list-style-type: none"> - Counties for tire collection and disposal; - Cleanup of nuisance sites. • Counties are not allowed to impose tipping fees for tires that are certified as generated in North Carolina. 	<ul style="list-style-type: none"> • Scrap tire haulers must register with the Solid Waste Section of the DEHNR and obtain a hauler identification number. • Counties must provide a site for tire collection. • Collection sites require permit from Solid Waste Section of DEHNR.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • The number of scrap tires stored at a scrap tire collection site must not exceed the stated number of scrap tires shipped off-site per month plus the stated number of scrap tires disposed of on-site per month. At no time can more than 60,000 scrap tires be stored. 	<ul style="list-style-type: none"> • Tires must be shredded or sliced prior to landfilling. 	<ul style="list-style-type: none"> • Funds for reimbursement to improve the use of recycled products. 	<ul style="list-style-type: none"> • North Carolina Department of Transportation is evaluating the use of tires in constructing retaining walls and the use of crumb rubber in asphalt.

NORTH DAKOTA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Steve Tillotson North Dakota Department of Health Division of Waste Management P.O. Box 5520 Bismarck, North Dakota 58506-5520 Telephone: 701-328-5166 FAX: 701-328-5200 E-mail: stillot@ranch.state.nd.us</p>	<ul style="list-style-type: none"> Solid Waste Management rules have been adopted and went into effect December 1, 1992. The rules address scrap tire storage. 	<ul style="list-style-type: none"> A portion of the State's \$2/new vehicle sale fee for cleanup of abandoned vehicles may be used to clean up tire piles. 	<ul style="list-style-type: none"> Haulers must have a waste hauler permit and identify a legitimate recycling or disposal facility.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Tire piles of more than 1,300 tires must be in compliance with regulations governing pile dimensions, control of access, fire control, run-on/run-off control systems, and financial assurance. Tire piles of more than 1,300 tires must have a solid waste management permit. Tire piles with a base area exceeding 10,000 square feet must comply with liner requirements. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> A new tire-derived fuel company, Waste Not Recycling, is processing tires in central North Dakota. The TDF is burned at a local utility.

OHIO

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Bob Large Ohio Environmental Protection Agency Division of Solid and Infectious Waste Management Scrap Tire Management Unit 1800 Watermark Drive P.O. Box 1049 Columbus, Ohio 43216-1049 Telephone: 614-644-2621 FAX: 614-728-5315</p>	<ul style="list-style-type: none"> House Bill 592, the State Solid Waste law, became effective in June 1988 and defined waste tires as a solid waste. Senate Bill 165, the State Scrap Tire law, became effective in October 1993, substituted the term scrap tire for waste tire, and established a comprehensive structure for regulating scrap tire collection, storage, recovery, monofill, and monocell facilities and scrap tire transporters. Regulations to implement Senate Bill 165 were adopted and became effective in March 1996. Regulation was developed to define approval of beneficial uses of scrap tires - Ohio Administrative Code (OAC) 3745-27-78. Regulations were developed governing cleanup actions after a scrap tire fire - OAC 3745-27-79. 	<ul style="list-style-type: none"> A \$0.50 fee was placed on each new tire sold at the wholesale level; the funds from this fee are designated for stockpile abatement, grants and loans to scrap tire facilities, program administration, and research at the University of Akron. 	<ul style="list-style-type: none"> Sellers and other generators are required to utilize registered transporters for the scrap tires they generate. Transporters are required to register annually with the OEPA and post \$20,000 in financial assurance. All scrap tire transportation must be documented on State approved shipping papers. Collection facilities are required to obtain a registration from OEPA and a license from the approved health department. Collection facilities are defined as facilities that accept whole scrap tires from the public and store them only in portable containers with a total storage volume limited to 5,000 cubic feet. Tires will only be delivered to licensed scrap tire facilities (collection, storage, recovery, monofill, or monocell) or to approved beneficial use sites. All scrap tire transporters and facilities must file an annual report on scrap tires handled, processed, or disposed.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Storage and recovery (processors and recyclers) facilities are required to obtain a registration or permit from OEPA and a license from the approved health department. Storage and recovery facilities must post financial assurance to cover the costs of closure. Individual storage piles are limited to 2,500 square feet in base area and 14 feet in height. Fire lanes at least 50 feet wide are required on all sides of outdoor storage piles. A registered storage facility is limited to 10,000 square feet of scrap tire storage. A permitted storage facility is limited to 3 acres of effective scrap tire storage and must be owned by someone who also owns or operates a recovery monocell, or monofill facility. All scrap tire transporters and facilities must file an annual report on scrap tires handled, processed, or disposed. 	<ul style="list-style-type: none"> Since March 1, 1996, whole tires have been banned from solid waste landfills. Since March 1, 1997, cut and shredded tires have been banned from disposal in solid waste landfills. Tire monofills require liners, leachate collection, weekly cover, and final cap. Tire monocell requirements vary based on their location in the host sanitary landfill. Scrap tire monocells and monofills must obtain a permit to install these facilities from OEPA and a license from the approved health department and post- financial assurance for closure and post-closure care. All scrap tire transporters and facilities must file an annual report on scrap tires handled, processed, or disposed of. 	<ul style="list-style-type: none"> Loans and limited grants are available to scrap tire businesses through the Ohio Department of Development 77 S. High Street, 28th Floor P.O. Box 1001 Columbus, Ohio 43266-0101 Telephone: 800-848-1300 FAX: 614-644-1789 Point of Contact: Mr. Brad Biggs 	<ul style="list-style-type: none"> Mosquito control is required of all scrap tire transporters and scrap tire facilities.

OKLAHOMA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Craig Belair or Brad Fleming Oklahoma State Department of Environmental Quality Solid Waste Division 1000 NE Tenth Street Oklahoma City, Oklahoma 73117- 1212 Telephone: 405-745-7121 (Belair) 405-745-7122 (Fleming) FAX: 405-745-7133</p>	<ul style="list-style-type: none"> Oklahoma Waste Tire Recycling Act (27A Part 4 of the Oklahoma Statutes Annotated) was enacted July 1, 1989. 	<ul style="list-style-type: none"> A \$3.50/tire surcharge on new truck tires in addition to a \$1/tire surcharge on new and used tire sales is in effect. Monies from the surcharge are deposited in the Waste Tire Indemnity Fund to help eliminate stockpiles of tires and to promote recycling by reimbursing facilities that process scrap tires. 	<ul style="list-style-type: none"> Tire haulers and transporters are not regulated. Collectors of more than 50 tires must be permitted by the State Department of Environmental Quality.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> A site storing, collecting, or disposing of more than 50 tires must be permitted by the State Department of Environmental Quality. This does not apply to tire manufacturers, retailers, wholesalers, or retreaders who store 2,500 or fewer used tires. Processors must be permitted by the Oklahoma State Department of Environmental Quality and must document that at least 10% of the tires processed came from illegal tire dumps identified by the Oklahoma State Department of Environmental Quality to participate in the State's reimbursement programs. 	<ul style="list-style-type: none"> Tires must be cut before being disposed of in a landfill. 	<ul style="list-style-type: none"> Oklahoma State Department of Environmental Quality permitted waste tire processing facilities are eligible for reimbursement at a rate of \$0.50/tire, if they demonstrate that 10% of the tires processed at their facility are from designated illegal tire dumps. Oklahoma State Department of Environmental Quality permitted waste tire processing facilities are eligible for an additional \$0.35/tire reimbursement if they demonstrate that their facility is providing pickup and transportation of waste tires from each and every county of the State on a regular basis. 	<ul style="list-style-type: none"> Riverbank stabilization projects are eligible for \$1.50 per truck tire when: <ul style="list-style-type: none"> The tire measures greater than 17.5" rim diameter; Tires come from dump sites on the priority enforcement list; and Tires are placed in a riverbank stabilization project permitted by the U.S. Army Corps of Engineers or local conservation district.

OREGON

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Bob Guerra Oregon Department of Environmental Quality Hazardous and Solid Waste Division 201 W. Main, Suite 2D Medford, Oregon 97501 Telephone: 541-776-6010, ext: 236 FAX: 541-776-6262 E-mail: bobguerra@state.or.us</p>	<ul style="list-style-type: none"> • HB 2022 Waste Tire Law, passed in 1987 and enacted in January 1988, set up a self-funded comprehensive program for waste tires. The Law regulates the transportation, storage, and landfilling of waste tires. • SB 66, passed in 1991, effective July 1, 1991, banned disposal of tires at landfills. • HB 2246, passed 1991: <ul style="list-style-type: none"> - Extended tire fee to October 1, 1992; - Extended reimbursement for use of scrap tires to June 30, 1993; - Gives DEQ authority to regulate tire product piles; - Expedited abatements; and - Restricted carrier permit requirement to those who haul for hire. 	<ul style="list-style-type: none"> • A \$1/tire disposal tax on the sale of new tires. The monies were used to clean up tire piles. Tire fee ended October 1, 1992. 	<ul style="list-style-type: none"> • Anyone transporting more than 4 tires commercially must be licensed with DEQ. • Tire dealers with more than 1,500 scrap tires on-site must have storage permit. • Generators are allowed to haul scrap tires generated at their facility without a permit but they must maintain documentation of their disposal. • All common carriers transporting waste tires over Oregon roads are required to obtain a Waste Tire Carrier Permit.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> • A facility that stores more than 99 tires on-site must have a storage site permit, unless it has been granted a beneficial use permit by DEQ. • Retreading facilities that have more than 3,000 tires on-site must have a storage permit. 	<ul style="list-style-type: none"> • Since July 1, 1991, whole tires have been banned from landfills. 	<ul style="list-style-type: none"> • The tire disposal tax is used to promote the use of waste tires by subsidizing markets for waste tires or chips. 	<ul style="list-style-type: none"> • Under a former Oregon demonstration program: <ul style="list-style-type: none"> - Two rubber modified paving projects were approved and completed in 1990; - A project was conducted by the Oregon State Highway Division using tire chips as a light fill; - Demonstration projects were conducted by the Department of Environmental Quality and the Metropolitan Service District to test rubber from waste tires in paving projects using generic specifications for rubber-modified asphalt concrete suitable to Oregon's climate and paving practices; - Tire-derived fuel was used in two paper mills and one cement kiln; and - Oregon-produced tire-derived fuel was used in three out-of-state cement kilns.

PENNSYLVANIA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Tom Woy Pennsylvania Department of Environmental Protection Bureau of Land Recycling and Waste Management P.O. Box 8472 400 Market St. Harrisburg, Pennsylvania 17105- 8472 Telephone: 717-787-7381 FAX: 717-787-1904 Web site: www.dep.state.pa.us</p>	<ul style="list-style-type: none"> Existing tire regulations were adopted under the Solid Waste Management Act of 1980. Residual waste regulation became effective in 1992. A regulatory change in 1992 redesignated tires as a residual waste rather than a municipal solid waste. 	<ul style="list-style-type: none"> A \$1/tire fee on new tire sales was established in 1992, under the Recycling and Planning Act of 1988. These monies have been redirected to fund mass transit systems in the State. 	<ul style="list-style-type: none"> No specific regulations.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Waste tire processing facilities are permitted under a general permit. Current requirements include access control, hazard prevention, nuisance control, recordkeeping, reporting, and site closure. Isolation distances are required between piles. Limits set on pile size, height, and width. Storage of scrap tires for over 1 year is considered disposal and is subject to permit requirements, including pile size, fire lanes, and placement. 	<ul style="list-style-type: none"> Disposal of whole waste tires in the State of Pennsylvania is prohibited. 	<ul style="list-style-type: none"> A 5% price preference for State purchase of supplies that meet recycled content requirements. A \$1 million Environmental Technology Fund offers low interest loans for recycling research and development projects and for funding new recycling equipment. 	<ul style="list-style-type: none"> Pennsylvania Department of Transportation laid two rubber-modified asphalt paving projects in 1998. The State has a policy that suggests the use of whole tires over a landfill cover system to mitigate the problem of tires floating in landfills.

RHODE ISLAND

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Stephen Morin Department of Environmental Management 235 Promenade Street Providence, Rhode Island 02908 Telephone: 401-277-2771, ext. 2401 FAX: 401-277-3162</p> <p>Dante Ionata Resource Recovery Corp. 65 Shun Pike Johnson, Rhode Island 02919 Telephone: 401-942-1430 FAX: 401-946-5174</p>	<ul style="list-style-type: none"> RIGL 37-15.1, "Hard-to-Dispose Material - Control and Recycling," applies to scrap tires. Solid waste management facility regulations apply to tire dumps and regulate size of piles, fire control measures, etc. RIGL 23-63, "Vehicle Tire Storage and Recycling," enacted in 1992, established a \$5 deposit on each new vehicle tire purchased and provided for a full refund to the consumer upon return of used tires. This deposit system became effective January 1, 1993. 	<ul style="list-style-type: none"> January 1, 1990, a \$0.50/tire tax on new tire sales was imposed. Revenues are deposited in a "Hard-to-Dispose Material Account" along with monies from surcharges on other "hard-to-dispose" wastes included in the bill. The State generates \$3 million/year from the fees to fund educational and technical assistance programs for collection, marketing, recycling, reuse, reduction, and safe disposal of "hard-to-dispose materials"; to establish grant and research programs; to survey, track, and monitor hard-to-dispose materials; and to establish regional collection centers for hard-to-dispose materials. Tire recyclers are assessed an initial license fee of \$50 and an annual renewal fee of \$25. Since January 1, 1993, the Rhode Island Port Authority is required to have a tire site remediation account funded by an additional \$0.75/tire tax on new tire sales. Ninety percent of the funds in the tire remediation account will be used for the cleanup, recycling, and disposal of existing tire piles; 10% may be used to assist municipalities with collection and proper disposal of waste tires. 	<ul style="list-style-type: none"> No specific regulations.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Facilities storing more than 400 tires must obtain a license from the Department of Environmental Management. Tire recycling or recovery businesses must be licensed by the Department of Environmental Management. 	<ul style="list-style-type: none"> Disposal of scrap tires is restricted to one of three methods: <ul style="list-style-type: none"> Facilities operated by the State Solid Waste Management Corporation; Licensed privately operated tire storage, recycling, or recovery facilities; or Transport to an out-of-state recycling facility. Burning of scrap tires within the State is banned. Exporting tires for burning as fuel outside the State and within 30 miles of any reservoir watershed for Rhode Island can occur only after the DEM receives written assurance that the burning facility meets all applicable State and Federal pollution control standards. 	<ul style="list-style-type: none"> The Hard-to-Dispose Material Account funds educational and technical assistance programs for collection, marketing, recycling, reuse, reduction, and safe disposal of hard-to-dispose materials, including scrap tires. 	

SOUTH CAROLINA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Celeste Duckett South Carolina Bureau of Land and Waste Management Division of Solid Waste Planning and Recycling 2600 Bull St. Columbia, South Carolina 29201 Telephone: 803-896-4226 FAX: 803-896-4001 E-mail: ducketcw@columb34.dhec.state.sc.us</p>	<ul style="list-style-type: none"> South Carolina's Solid Waste Policy and Management Act of 1991 (SB 388 and HB 3096) contains provisions for a \$2/tire tax on the sale of new tires that became effective in November 1991. The Act establishes a 10-member Waste Tire Committee. The Act requires State and county solid waste plans to include a section on waste tires. Department of Health and Environmental Control (DHEC) is required to establish regulations for permitting/registering collectors, processors, haulers, and disposers of waste tires. These regulations were promulgated in 1993. 	<ul style="list-style-type: none"> For every new tire sold in the State a fee of \$2 is collected by the tire retailer. The retailer may keep 3% for administrative costs. In addition, the retailer may keep \$1 for every old tire that he or she sends to a permitted waste tire recycling/disposal facility. The remainder is sent by the retailer to the State Treasurer's Office. Forty-four cents of the \$2 goes into the SCDHEC Waste Tire Fund (part of the Solid Waste Trust Fund) for grants to local governments. The Waste Tire Fund may be used for grants to local governments for the remediation of stockpiled waste tires, to construct or operate a tire-derived-fuel facility, to construct or operate a waste tire treatment facility, to contract for waste tire treatment services, to contract for the removal of waste tires or to perform research designed to facilitate waste tire recycling or disposal. The remainder (up to \$1.50/tire) is allocated to the counties directly by the Department of Revenue on a per capita basis. This money is allocated on a quarterly basis and is to be used by the counties for waste tire management purposes only. Prohibits counties from charging additional disposal fees except for oversize and out-of-state tires. 	<ul style="list-style-type: none"> Counties are required to establish waste tire collection sites within 12 months of promulgation of regulations.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> The Department of Health and Environmental Control currently has mandatory guidelines for scrap tire storage. Requires owners and operators of waste tire sites to notify the South Carolina Department of Health and Environmental Control of the site's location, size, and number of tires accumulated. 	<ul style="list-style-type: none"> Bans whole waste tires from disposal at landfills. 	<ul style="list-style-type: none"> New tire retailers may keep 3% of the \$2 State fee for administrative costs and \$1 for every old tire they send to a permitted waste tire recycling/disposal facility. 	

SOUTH DAKOTA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Vonni Kallemeyn South Dakota Department of Environment and Natural Resources (DENR) Waste Management Program Foss Building 523 East Capital Pierre, South Dakota 57501-3181 Telephone: 605-773-3153 FAX: 605-773-6035</p>	<ul style="list-style-type: none"> Waste tire law was passed and became effective July 1, 1992. Amendments became effective on July 1, 1996. DENR prepared a waste tire study for the Legislature by January 1, 1993. 	<ul style="list-style-type: none"> Registration fee of \$0.25/tire per vehicle (not to exceed \$1/vehicle). Fees are remitted to the State to develop a grant fund for tire recycling end uses. The incineration of tires in waste-to-energy units does not qualify for grant funds. 	<ul style="list-style-type: none"> No specific regulations. Effective July 1, 1998, haulers of waste tires are responsible for transporting waste tires to a DENR-approved collection or processing site.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Storage facilities must have a solid waste permit. Tire handlers permitted by DENR to process tires may accumulate up to 100,000 tires annually before removal. Accumulated tires must be removed annually. Financial assurance is required at \$2 per tire. 	<ul style="list-style-type: none"> Tires must be cut into at least four pieces or shredded prior to landfilling. Open burning of tires is prohibited. 	<ul style="list-style-type: none"> State grant fund for tire recycling end uses, including funding of tire-derived fuel programs. The incineration of tires in waste-to-energy units does not qualify for grant funds. 	<ul style="list-style-type: none"> Waste Management Program and South Dakota DOT are working to develop civil engineering applications for shredded tires.

TENNESSEE

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Alan Ball Tennessee Department of Environment and Conservation Division of Solid Waste Assistance 401 Church Street, L&C Tower 14th Floor Nashville, Tennessee 37243-0455 Telephone: 615-532-0090 Fax: 615-532-0231 Web site: www.state.tn.us/environment/swa</p>	<ul style="list-style-type: none"> State Solid Waste Management Planning Act [Tennessee Code Annotated (TCA) 68-211-801] was passed in 1991. It requires the Department of Environment and Conservation (DEC) to purchase mobile shredders and operate them throughout the State to process segregated and temporarily stored tires at landfills, or for the DEC to contract with a shredding service. TCA 68-211-831 was amended in 1996 to allow the State to spend money to clean up unpermitted waste tire dumps. TCA amended (by SB 1729/HB 1885) in 1998 to: <ul style="list-style-type: none"> Identify beneficial end uses for waste tires to be eligible for grant reimbursement; Authorize the DEC to enter into contracts with companies that recycle tires; By 2000, limit tipping fees on waste tires in counties that receive DEC grants; Ban landfilling of tire shreds by 2002. 	<ul style="list-style-type: none"> Since July 1, 1998, fees on waste disposal in Class I landfills and incinerators are \$0.75/ton. Fees on new tire sales (\$1/tire) became effective October 1991. State of Tennessee collects all fees. Prohibits counties from imposing additional disposal fees or surcharges on tires above the tipping fee for regular garbage. 	<ul style="list-style-type: none"> By January 1995, each county must establish at least one waste tire collection site.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Rule 1200-1-7-.04 governs storage and disposal. Facility must have a permit. 	<ul style="list-style-type: none"> Since January 1, 1995, whole tires have been banned from disposal in landfills. Effective the year 2002 tire shreds will be banned from landfills. 	<ul style="list-style-type: none"> State grant program for county governments to find beneficial end uses for their tires in lieu of State provided shredding service. Grant reimbursement for beneficial end uses of waste tires. 	<ul style="list-style-type: none"> Under the provisions of the law, the DEC has contracted with a private shredding service to process tires at county collection sites. Four industries are burning tires or tire-derived fuel. <ul style="list-style-type: none"> Signal Mountain Cement Company; Bowater Inc. (pulp mill); The Tennessee Valley Authority's Allen Fossil Plant; and South Down, Inc. (cement kiln).

TEXAS

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Debra Bohl (MC-125) Closed Landfills and Automotive Wastes Texas Natural Resource Conservation Commission P.O. Box 13087 Austin, Texas 78711-3087 Telephone: 512-239-6695 FAX: 512-239-6015 Prerecorded Information Line: 1-888-892-7833 Web site: www.tnrc.state.tx.us</p>	<ul style="list-style-type: none"> No new legislation passed in 1997. Majority of waste tire recycling statutes expired December 31, 1997. Health and Safety Code, Article 5, Subchapter P - Waste Tire Recycling Program expired December 31, 1997. Health and Safety Code, Article 5, Subchapter C, Section 361.112 - Storage, Transportation, Disposal of Used or Scrap Tires remains in effect. \$2 waste tire recycling fee was repealed, effective December 31, 1997. \$0.80 per waste tire unit reimbursement to processors and waste tire energy recovery facilities was repealed, effective December 31, 1997. 	<ul style="list-style-type: none"> \$9 million available for the remediation of illegal waste tire dumps. Funding administered through competitive bid process. 	<ul style="list-style-type: none"> Tire generators, transporters, storage and processing facilities must be registered by the State. Waste tire generators may be charged for collection, recycling, and/or disposal costs. Annual reports must be submitted to the State.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> If over 500 scrap tires are stored on public or private property, the site must be registered with the State and have a site identification number. Processors must be registered with the State of Texas. Illegal tire dumps identified by the State prior to December 31, 1997 will be eligible for State-funded cleanup. 	<ul style="list-style-type: none"> Previous disposal prohibition on tires expired December 31, 1997. All tires that are disposed of must be split, quartered, or shredded. 	<ul style="list-style-type: none"> No State-funded incentives. Free market for collection, processing, and disposal of scrap tires. 	<ul style="list-style-type: none"> Currently revising rules to reflect expiration of tire statutes.

UTAH

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Wade Hansen Utah State Department of Environmental Quality 288 North 1460 West Salt Lake City, Utah 84114-4880 Telephone: 801-538-6751 FAX: 801-538-6715</p>	<ul style="list-style-type: none"> SB 5, passed in May 1990, established a per-tire graduated tax. Local health departments have authority over the management of waste tires. 	<ul style="list-style-type: none"> Since July 1, 1997, there is a \$0.50 per tire tax on all tire sales including new car sales. Monies will be deposited in a recycling fund. 	<ul style="list-style-type: none"> All haulers and collectors must keep records illustrating how many tires are picked up, how many tires are disposed of and where. All haulers and collectors must be registered.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> All storage and processing facilities have to be licensed through the Health Department. Facilities storing more than 1,000 tires are required to furnish bonds, comply with local zoning and tire ordinances, and are strictly limited as to how many tires can be stored at any one time. The Health Department enforces a manifest system to regulate tire collection. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Recyclers (end users) can receive up to \$70 per ton for the use of tire-derived materials in manufactured products and in TDF. The end user incentive is administered through local health departments. 	

VERMONT

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Waste James Surwilo State of Vermont Department of Environmental Conservation Solid Waste Management Program 103 South Main Street, West Building Waterbury, Vermont 05671-0407 Telephone: 802-241-3481 FAX: 802-241-3296</p> <p>Recycling Carol Grodinsky State of Vermont Department of Environmental Conservation Environmental Assistance Division Laundry Building Waterbury, Vermont 05671-0411 Telephone: 802-241-3477 FAX: 802-241-3273</p>	<ul style="list-style-type: none"> Although there is no legislation specific to tires, scrap tire management is addressed as part of other environmental legislation. 	<ul style="list-style-type: none"> The State legislature is currently investigating recommendations of the State Solid Waste Management Program, published in 1989, to develop and propose a disposal/deposit charge on tires at a rate high enough to encourage the return of tires to dealers and to fund scrap tire management programs. 	<ul style="list-style-type: none"> Scrap tires are considered a solid waste. As such, commercial scrap tire haulers need a waste hauling permit.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Storage facilities and processors need a permit. 	<ul style="list-style-type: none"> Since January 1, 1992, all tires have been banned from disposal in landfills. Landfills will be allowed to continue accepting tires if the facility functions as a tire recycling facility or a transfer station. 	<ul style="list-style-type: none"> A 5% price preference is authorized for products containing recycled materials. A higher price preference is allowed if State entities that will use the product agree on the higher price. Market development grants are provided to the private sector for the development of new products that may stimulate in-State demand for recyclable materials. Grants are available to publicly owned entities for the capital costs of tire recycling equipment and programs. 	<ul style="list-style-type: none"> The Agency of Transportation has used tire chips in several projects for slope stabilization and has done some experimental work using asphalt rubber surface treatment. Tires have also been allowed to be used for riverbank and slope stabilization work in several areas, but only above low water level elevations and where environmental concerns are minimal. A study was commissioned entitled "A Report on the Use of Shredded Scrap Tires in On-Site Sewage Disposal Systems." Effective in 1992, the State approved the use of tire chips in place of crushed stone in septic systems that have a preapproved design that includes a monitoring system. The State approves the use of whole tires for retaining walls on a case-by-case basis. Tire chips were used successfully as lightweight backfill for a timber binwall. The binwall was about 400 feet in length and about 10 feet high. Approximately 7,200 cubic yards of tire chips (300,000 tires' worth) were used as backfill. Tire chips are generally approved for applications that make use of their unique properties (i.e., light weight, cushioning, transmissivity). In 1998, the State Department of Environmental Conservation built a leach field using tire chips in place of stone and will monitor the effluent for 3 years.

VIRGINIA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Allan Lassiter Waste Tire Program Manager Virginia Department of Environmental Quality (DEQ) P.O. Box 10009 Richmond, Virginia 23240 Telephone: 804-698-4215 FAX: 804-698-4224</p>	<ul style="list-style-type: none"> 1989—the Waste Tire Act was passed which directed the DEQ to develop and implement a plan to manage waste tires and set a \$0.50 tax on the retail sale of tires, the proceeds of which are dedicated to the Waste Tire Trust Fund. 1993—General Assembly enacted End User Reimbursement Program, using Oregon's program as a model. 1994—Current Waste Tire Plan enacted. 1995—General Assembly enacted Strict Liability for tire fire damage on the property owner. 1996—General Assembly established as a Class 6 felony the storing of more than 500 tires without a DEQ permit. 1997—General Assembly determined that storing 100 to 499 tires without a DEQ permit would be a misdemeanor. 	<ul style="list-style-type: none"> The \$0.50 per tire tax on new tire sales that was to sunset on December 31, 1994, has been extended with no expiration date. 	<ul style="list-style-type: none"> Voluntary registration system for haulers (75 registered as of 1998). Voluntary use of Waste Tire Certification for tracking tires. Certified waste tire collection sites operated by localities or solid waste districts (48 certified as of 1998).

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Tire piles at recycling sites may not exceed 1,000 tires without a permit. Storage of more than 100 tires requires a permit for storage longer than 90 days. Most processors need an MRF facility permit under Virginia's Solid Waste Management Regulations. 	<ul style="list-style-type: none"> Since 1988 whole tires have been banned from landfills. Tires that are sliced into two pieces or shredded may be landfilled. 	<ul style="list-style-type: none"> User Reimbursement Program achieved beneficial use for 5,830,300 tires in 1995 and 7,606,200 tires in 1996 with end user payments of \$1,705,575 in 1995 and \$2,210,196 in 1996. 	<ul style="list-style-type: none"> The Advisory Committee and DEQ developed a four-year, \$14.7 million, management program consisting of regional tire collection and processing programs, the end user reimbursement system and six demonstration waste tire pile cleanups. In 1993 a Statewide tire pile survey documented 731 tire piles containing an estimated 17,600,000 tires at an estimated cleanup cost of \$32 million. Stockpile cleanups continue at a steady pace. In 1997, 37 piles containing 4,665,400 tires were cleaned up under End User Reimbursements (only); and six cleanup demonstrations cleaned up 2,866,500 tires for a combined total of 43 sites and 7,531,900 passenger tire equivalents (PTE's).

WASHINGTON

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Randy Martin Washington Department of Ecology (DOE) Solid Waste and Financial Assistance Mail Stop 47600 P.O. Box 47600 Olympia, Washington 98504-7600 Telephone: 360-407-6136 FAX: 360-407-6102</p>	<ul style="list-style-type: none"> Washington Administrative Code 173-304-420 addresses storage of scrap tires. 	<ul style="list-style-type: none"> The tire fee on the retail sale of new tires sunsetted October 1994. 	<ul style="list-style-type: none"> Haulers must pay a \$250/year license fee and must document delivery of scrap tires under provisions of the current scrap tire law.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> A permit from the local jurisdiction is necessary for tire piles of more than 800 tires. Storage yard owners must develop site plans with local fire departments for fire control. Storage yard owners must comply with size and enclosure requirements. Site owners must document delivery of scrap tires. 	<ul style="list-style-type: none"> The State's combustor rules limit the number of tons of solid waste that can be burned in incinerators or industrial boilers that are not solid waste combustion facilities to 12 tons/day. These rules apply to tire fuels and equal 50 tires/hour. 		

WEST VIRGINIA

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Paul Benedun West Virginia Division of Environmental Protection Office of Waste Management 1356 Hansford Street Charleston, West Virginia 25301 Telephone: 304-558-6350 FAX: 304-558-1574</p>	<ul style="list-style-type: none"> October 1991 Special Session. SB 18 - Chapter 20, Article 11, Section 8, effective June 1, 1993, bans the disposal of waste tires in landfills. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Regulated by West Virginia Public Service Commission. Haulers must obtain a certificate from the West Virginia Public Service Commission.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> No more than 500 waste tires can be stored unless a facility or tire dealer is permitted. Stationary processing facilities must be permitted. Mobile shredders are not required to have a permit. Storage at processing facilities is limited to one pile (or as approved by the permit) of whole tires, and no more than 9 piles of shredded tires, each pile measuring no more than 200 feet by 50 feet by 15 feet. 	<ul style="list-style-type: none"> Since June 1, 1996, the disposal of waste tires in landfills has been banned. Incineration of solid waste, including tires, has been prohibited since May 1, 1993, except for "pilot" projects. Alternative reuse plans for non-cut or whole tires may be submitted for consideration for approval. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Shredded tires may be used as landfill daily cover or in the landfill liner as a leachate drainage. Waste tires or tire-derived material may be beneficially reused as approved or may be used as an alternative or supplemental fuel with appropriate Air Quality permits.

WISCONSIN

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Paul Kozlar Wisconsin Department of Natural Resources Bureau of Waste Management P.O. Box 7921 101 South Webster Street Madison, Wisconsin 53703 Telephone: 608-267-9388 FAX: 608-267-2768</p>	<ul style="list-style-type: none"> AB 481, passed in 1987, established a tire fee. Act 355, passed in 1990, banned scrap tires from landfills as of January 1, 1995. 	<ul style="list-style-type: none"> There was a \$2/tire fee on new vehicle titles. The fee generated approximately \$3 million annually. Funds were deposited in the Waste Tire Removal and Recovery Program. Fee/funding for the program sunsetted June 30, 1996. 	<ul style="list-style-type: none"> All waste collectors, transporters, storage and processing facilities must be licensed.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> All waste collectors, transporters, storage and processing facilities must be licensed. Proof of financial responsibility for stored tires. 	<ul style="list-style-type: none"> Since January 1, 1995, tires have been banned from being disposed of in landfills. 	<ul style="list-style-type: none"> The Waste Tire Reimbursement Grant Program is designed to provide financial assistance regarding the cost of developing or operating certain types of waste tire reuse, and provides eligible companies with a \$20/ton (or \$0.01/lb) reimbursement for use of waste tire material for energy recovery, construction or in the manufacture of products. Annually, \$750,000 is set aside for this purpose. Beginning in 1994 processors of waste tires were eligible for a similar reimbursement as end users. Additionally, if waste tires were used to make a product, the reimbursement was increased to \$0.02/lb. 	<ul style="list-style-type: none"> The State's Waste Tire Management or Recovery Grant Program is intended to research new uses and expand existing uses of scrap tires. It has funded the following projects: <ul style="list-style-type: none"> Air emission testing to evaluate air emissions resulting from the combustion of waste tires with coal and wood waste; Testing fly ash and bottom ash resulting from combustion of waste tires and wood; Environmental assessment of air emissions for the proposed waste tire medical waste incinerator; Testing combustion technology; Investigating fuel feed system designs to accommodate combustion of waste tire material in fluidized bed boiler Testing the development of various rubber products, such as bed liners for pick-up trucks; Testing leaching characteristics of shredded waste tires; Constructing roads using rubberized asphalt. The State's waste tire cleanup program is intended to clean up nuisance waste tire stockpiles: <ul style="list-style-type: none"> \$2 million set aside annually to clean up 2 million tires/per year; and Cost recovery from responsible parties.

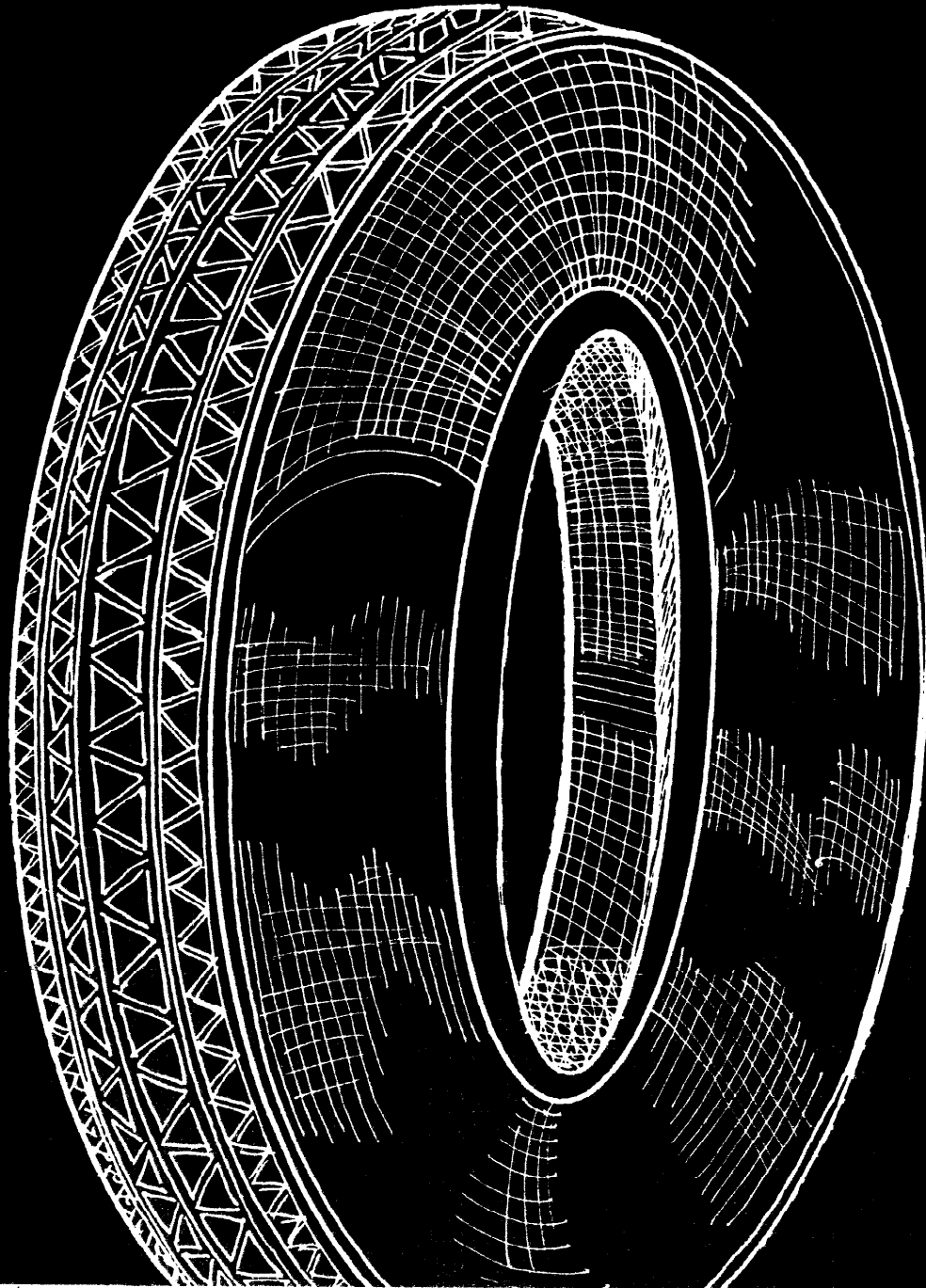
WYOMING

State Contact	Legislation and Regulations	Funding Sources/Fees	Collector, Seller, and Hauler Regulations
<p>Timothy Link Wyoming Department of Environmental Quality Solid and Hazardous Waste Division 122 West 25th Street Herschler Building, 4-West Cheyenne, Wyoming 82002 Telephone: 307-777-7164 FAX: 307-777-5973</p>	<ul style="list-style-type: none"> HB 213, passed in 1989, amended the Solid Waste Management Act for solid waste storage and treatment facilities. It established bonding and location requirements and a permitting system for solid waste facilities, and limits the accumulation of waste, including tires, prior to disposal. 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Levels are set for the number of tires that can be stored at retail stores, collection centers, and landfills without obtaining a permit.

Storage and Processor Regulations	Disposal Restrictions	Financial/Market Incentives	Additional Information
<ul style="list-style-type: none"> Levels are set for the number of tires that can be stored at retail stores, collection centers, and landfills without obtaining a permit. Landfills must have a permit to store more than 5,000 whole tires. Regulations establish bonding and location requirements and a permitting system for solid waste facilities. (Tires are defined as a solid waste.) 	<ul style="list-style-type: none"> Not addressed. 	<ul style="list-style-type: none"> Not addressed. 	



Summary of Markets for Scrap Tires



The Role of Markets in Recycling

Recycling, along with source reduction, combustion, and disposal in landfills, is a key component of an integrated municipal solid waste management strategy. Recycling may consist of several steps, including collection, separation, processing, remanufacture, and marketing. A material is not considered "recycled" until *all* of these steps are completed and the "recycling loop" is closed.

Since materials must be converted into products and used by consumers to close the recycling loop, understanding the markets for recyclable materials and for goods manufactured from recyclable materials is key to continued and expanded recycling. Markets for recyclable materials, like all markets, are influenced by the laws of supply and demand. As more and more communities across the nation implement recycling programs and more recyclable materials enter the marketplace, both supply and demand are affected.

The U.S. Environmental Protection Agency (EPA) is supporting market development by promoting the government purchase of goods containing

¹The word recycling as it is used throughout this booklet encompasses composting as a form of recycling.

recycled materials; providing assistance to local governments; and researching, developing, and evaluating policy options.

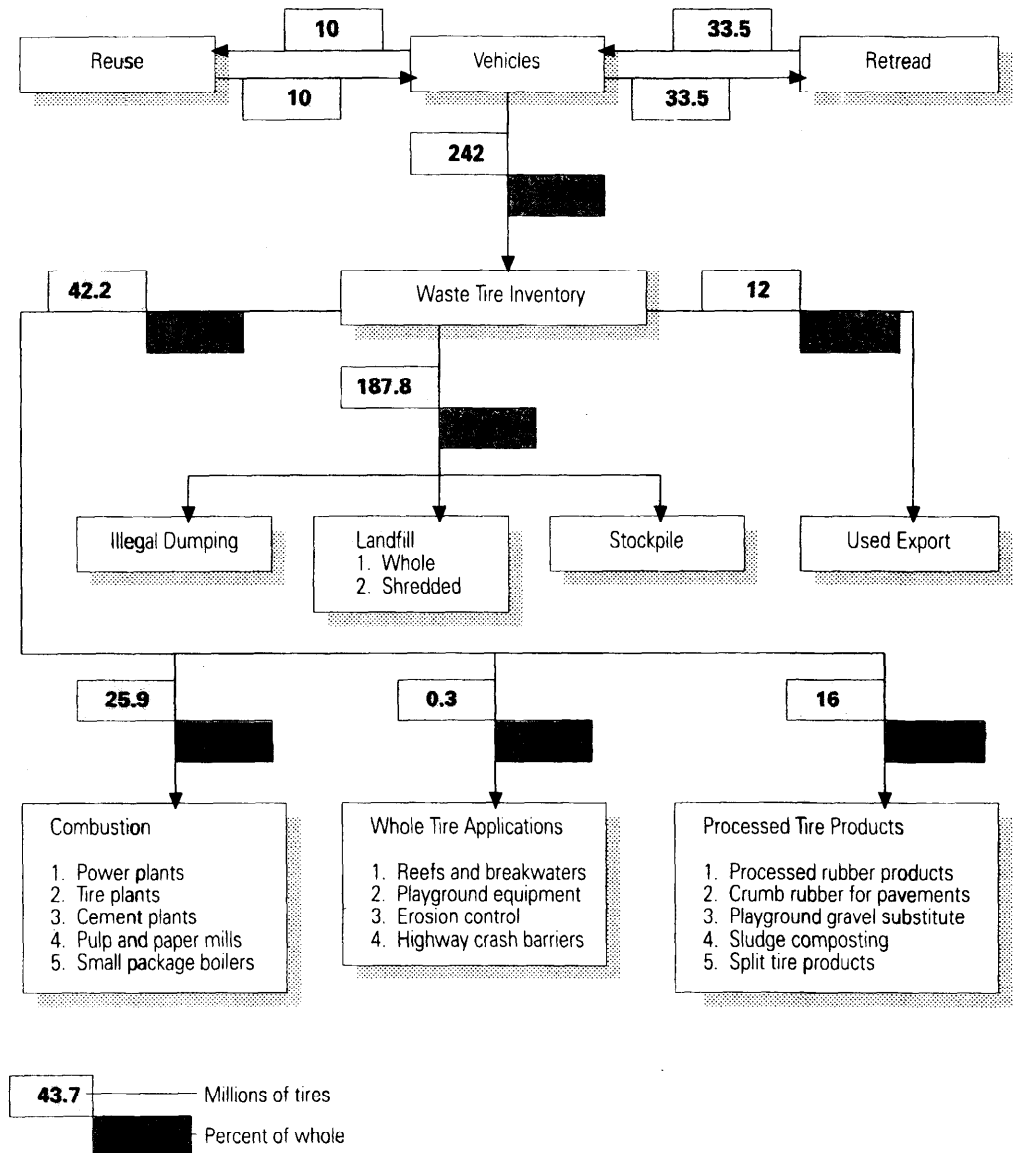
This booklet summarizes EPA's *Markets for Scrap Tires*. It describes factors affecting the current supply and demand for scrap tires, and provides information on future market trends. It also explains how to obtain a copy of the full report.



About 242 million tires (about one tire per person) are scrapped in the United States each year. Scrap tire generation has grown by about 2 percent per year since 1984. Less than 7 percent of these scrap tires are recycled as products; approximately 11 percent are incinerated for their fuel value. Another 5 percent are exported, and the final 78 percent are disposed of in landfills, stockpiled, or illegally dumped. A diagram showing the estimated destination of scrap tires is presented on page 2.

Scrap tires that are stockpiled or disposed of in illegal dumps can create

Estimated destination for scrap tires in 1990



* Retreads (33.5 million) and reused tires (10 million) are not counted as scrap tires.

potentially serious health hazards, including mosquito infestation (with the potential for spreading dangerous mosquito-borne disease) and fires (which create air and water pollution and are difficult to control and clean up).

Disposing of whole tires in landfills is problematic since they occupy a large volume of landfill space, and can collect gas and harbor rodents. Tires tend to float or rise in a landfill and come to the surface, piercing the landfill cover. These problems have led to extremely high tipping fees for scrap tires in landfills—at least twice the fee for municipal solid waste—or total bans on whole tires.


More than 50 percent of the nation's rubber is used to make tires. However, new tires contain no more than 2 percent recycled rubber. This helps to explain why the scrap tire problem has become so large. Several factors, however, serve to reduce the number of tires that require disposal:

Improvements in tire manufacturing over the past 40 years have more than doubled the useful life of tires. Currently, steel-belted radial passenger tires last about 40,000 miles. If these tires are properly inflated, rotated, and otherwise cared for, 60,000- to 80,000-mile lifetimes may be achieved.

Frequently, when one or two tires of a set are worn out, the entire set is replaced with new tires. Useful tread may remain on two or three of the tires removed. Many tire stores and tire haulers sort out the reusable tires for resale. Currently, about 50 percent of usable tires are being scrapped.

Retreading is the application of a new tread to a worn tire that still has a good casing.

Currently, over 1,900 retreaders operate in the United States, but that number is shrinking because of declining markets for passenger retreads. This decline is due to the relatively low price of new tires and concerns about the safety of retreads. Truck tires, however, are often retreaded three times before they are discarded, and the truck tire retreading business is increasing.



Future Trends in the Supply

The federal government is working to identify and implement strategies to decrease the number of scrap tires and the economic and environmental problems that accompany scrap tire disposal. For example, in 1989 EPA promulgated procurement guidelines that promote the use of retread tires by government agencies and entities funded by the government. These guidelines became effective on November 17, 1989. If the retread markets could be developed so that all the passenger and light truck tires suitable for retreading were actually retreaded, then about 20 million fewer new replacement tires would be needed annually. This would reduce the number of scrap tires generated per year by almost 10 percent.

More widespread reuse of partially worn tires could also help to reduce the number of tires scrapped each year. An estimated 10,000 miles of additional life can be realized out of 25 percent of the tires removed from vehicles. Reusing all of those tires would reduce the number scrapped by about 3 percent. Major design changes could also significantly increase tire life; however, these are not expected to occur in the near future.



Demand for Recovered Tires

The markets for scrap tires include a variety of whole tire and processed tire product applications. Some of the major markets for scrap tires are manufacturers of crumb rubber and combustion facilities that use the tires as a fuel. About 6.7 percent of scrap tires are currently recycled.

Crumb rubber is usually made by chopping and grinding rubber into pieces the size of sand or silt. A significant portion of the crumb rubber market demand is met by buffings and peels from retread shops. This rubber may be used in rubber or plastic

chunks of shredded tires have been utilized as road construction material, play ground gravel substitutes, and sludge composting agents.

products, or processed further into reclaim rubber or asphalt products.

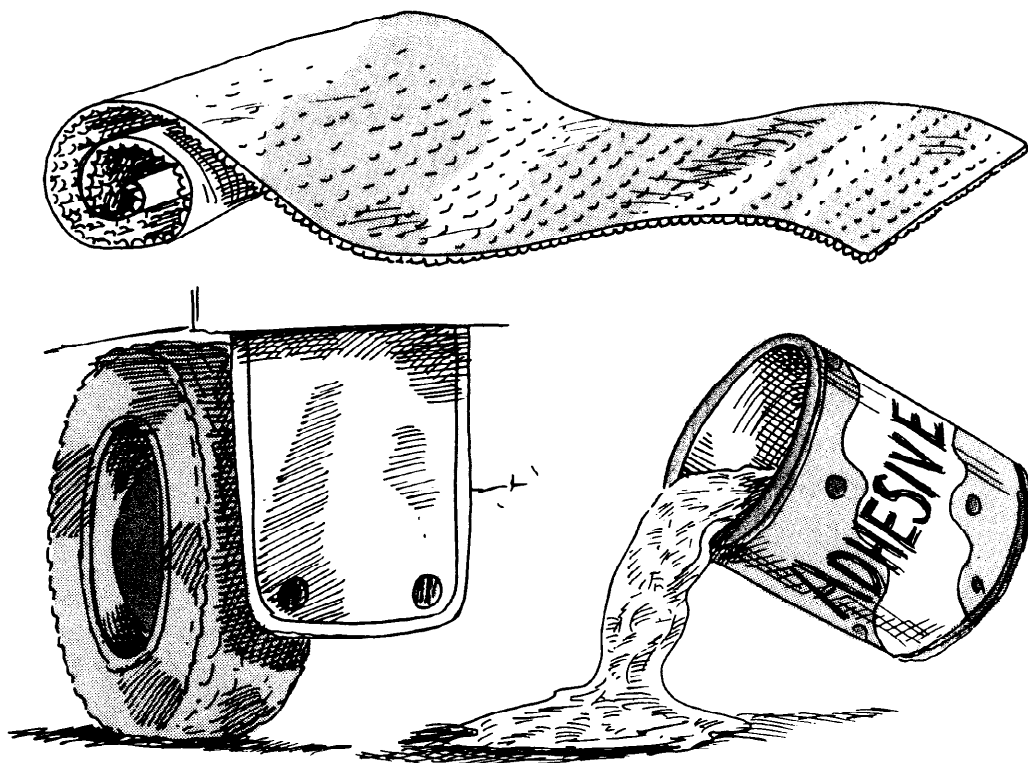
Each year, approximately 8.6 million scrap tires (3 percent of the total number of tires discarded annually) are used to make crumb rubber that is incorporated into rubber products (such as floor mats, vehicle mud guards, and carpet padding) and plastic products (such as plastic floor mats and adhesives). About 2.9 million tires per year (1.5 percent) are used for reclaim rubber each year. Reclaim rubber is made by mixing crumb rubber with water, oil, and chemicals, and heating the mixture under pressure. The resulting substance can be formed into slabs or bales and shipped to

manufacturers for use as an alternative to virgin rubber in tires or in mats and other rubber products. Because reclaim rubber tends to lose its elastic properties during processing, it is no longer extensively used in tires. Due to limited market demand, only 50 to 60 percent of the reclaim rubber industry's capacity is currently being utilized.

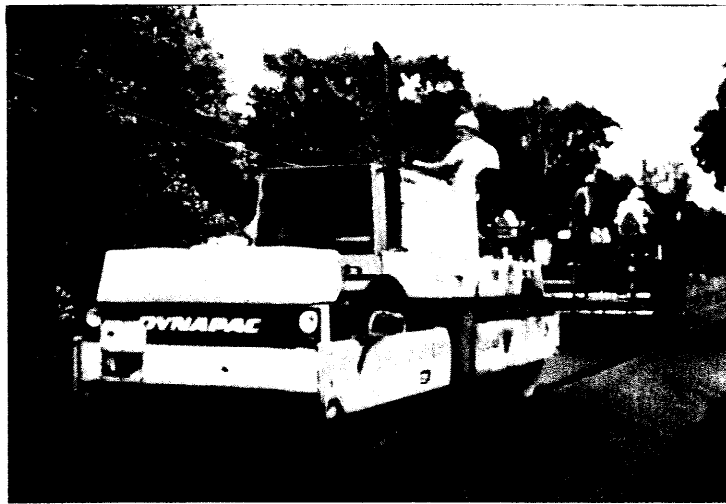
Over 1 million scrap tires per year are currently used for pavements with rubber additives. Asphalt pavements with rubber added have increased durability and flexibility compared to ordinary asphalt. They can have twice the lifetime of ordinary asphalt, but the initial cost is about twice as high. Two different processes are currently used to add crumb rubber to asphalt: the Rubber Modified Asphalt Concrete (RUMAC)

technique and the Asphalt-Rubber Binder System. Presently, the equivalent of 0.8 percent of scrap tires are used in rubberized asphalt, although their use in pavement is increasing rapidly (almost 60 percent growth from 1987 to 1989).

In the past 3 years, the use of scrap tires as a fuel has increased significantly. Scrap tires make an excellent fuel because they have a heat value slightly higher than that of coal, about 12,000 to 16,000 Btu per pound. On a national basis, they represent a potentially significant energy source. If all scrap tires were burned, they would supply 0.09 percent of the nation's energy needs. Currently, 10.7 percent of scrap tires are used as fuel and this is expected to continue to increase. Combustion facilities that currently use tires as fuel



Over 2 million tires are processed into crumb rubber for use in a variety of rubber and plastic products such as floor mats, vehicle mud guards, and adhesives.



One of the most promising applications of scrap tires is in street pavement. Adding scrap tire rubber to asphalt doubles the durability and increases the flexibility of standard street pavement.

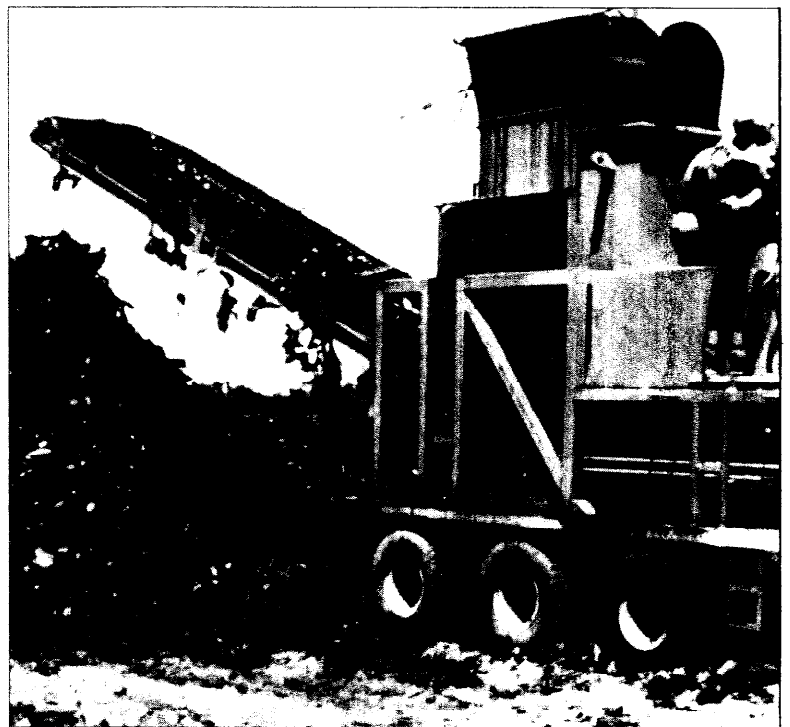
The technology used at this plant also allows for recycling of all the scrap tire by-products generated in the process. The power that is gener-

ated is sold under a long-term agreement to a regional utility. A second whole-tire-to-energy plant, which will turn 9 to 10 million tires per year into electricity, is under construction in Sterling, Connecticut. With the completion of this plant, there will be capacity in the United States to turn 14 million scrap tires into electricity each year.

include power plants, tire manufacturing plants, cement kilns, and pulp and paper mills. The most economical way to use tires for fuel is to burn them whole; however, most plants currently burning tires for fuel do not have the capability to burn whole tires. Instead, they must burn tires that have been shredded into chunks (also known as tire-derived fuel, or tdf).

At present, only one company in the United States manages a power plant fueled exclusively by whole tires. This company, located in Modesto, California, collects and sorts scrap tires for fuel and other applications, with no tires going to landfills.

Although whole tires require lower processing costs as a fuel source, most plants are equipped to incinerate only tires shredded into tire derived fuels (tdf).



Two tire manufacturing plants have installed pulsating floor furnaces to combust scrap tires and other solid wastes. The steam generated during the combustion process is converted to energy for use in the tire manufacturing operations. Each of the combustors has the capacity to burn approximately 500,000 tires per year; however, one of the facilities is currently shut down.

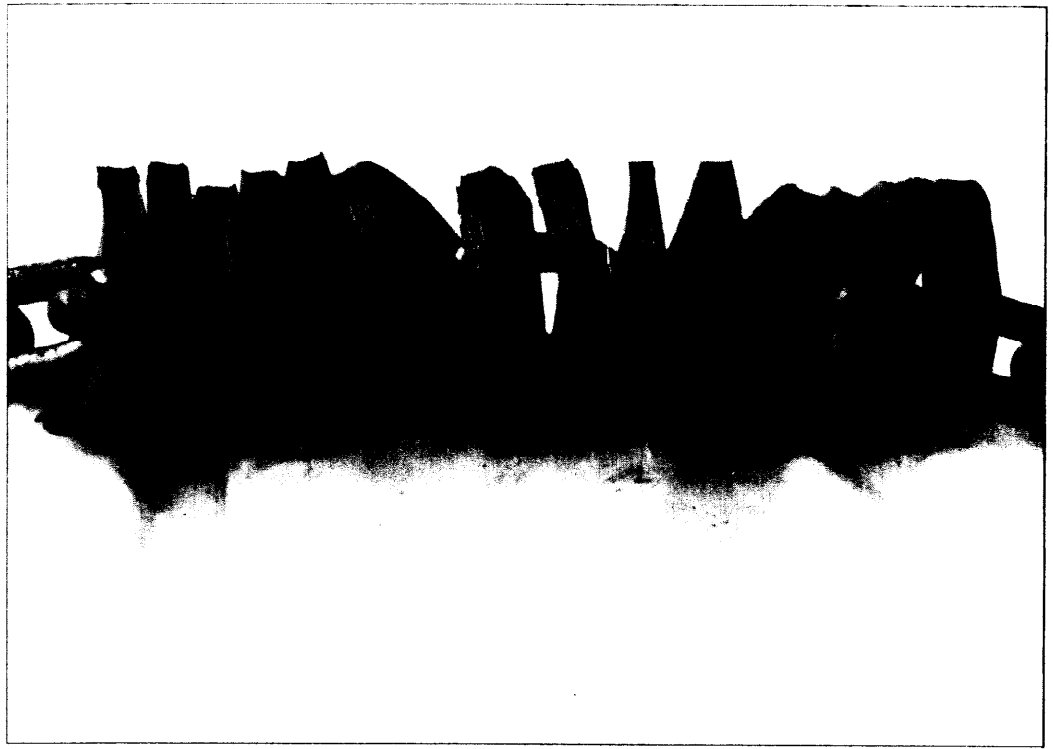
Cement kilns can thoroughly combust scrap tires because they operate at very high temperatures. In addition, the cement production can utilize the iron contained in the tires' steel belts and beads. Despite these advantages, only three cement plants in the United States currently use tdf, consuming a total of about 6 million tires per year. This is in

sharp contrast to several other countries (particularly West Germany, Austria, France, Greece, and Japan) where burning of scrap tires in cement kilns is more common. The slower adoption of this approach in the United States is probably due to the lower cost of fuel here, as well as the existence of landfills that will accept tires at fairly low tipping fees. In addition, some kiln owners are reluctant to begin using tdf because to do so would require reentering the permitting process.

Furnaces at many pulp and paper mills are designed to burn wood waste (also known as hog fuel). Often these furnaces can be fed tdf without any major capital equipment changes. Hog fuel boilers can generally use tdf for up



This vast heap of tires awaits combustion at the Oxford Energy plant in Modesto, California, which uses whole tires as its sole energy source.



to 15 percent of their fuel value. At higher percentages, additional technology may be needed to control particulate emissions. The equivalent of 12 million tires are consumed annually in hog fuel boilers in the pulp and paper industry.

The newest use of tires for fuel is in conventional electricity-generating power plants. Power companies in Illinois, Wisconsin, and South Dakota have tested tdf as a partial substitute for coal in some types of boilers. Key considerations are the capabilities for these plants to handle tdf and ensuring that any air emissions or other by-products meet environmental limits.

Pyrolysis of tires involves the application of heat to produce chemical changes and derive products such as gas, oil, and carbon black. Although several

A New Bedford, Massachusetts, firm converts 2,000 tires a day into commercial flooring equipment such as these 3-inch chain covers carved from the sides of truck tires. The covers reduce the wear exerted on flooring chains, thereby prolonging their lifespan.

pyrolysis units have operated on an experimental basis, none has yet sustained commercial operation. The oil produced by pyrolysis would have to compete with conventionally produced oil from crude. The char by-products often require upgrading before they can be sold.

Scrap tires are also used to a lesser extent for a variety of other purposes, including whole tires for artificial reefs, breakwaters, erosion control, playground equipment, and highway crash

barriers; split, punched, or stamped tires for fabrication into products such as floor mats, belts, gaskets, shoe soles, dock bumpers, seals, muffler hangers, shims, washers, and electrical insulators; chipped tires for lightweight fill material where roads cross peat or other soft soils; chipped tires for playground gravel substitutes; crumb rubber in railroad crossings and rubber and plastic products; and shredded tires for bulking agents in the composting of wastewater treatment sludge.



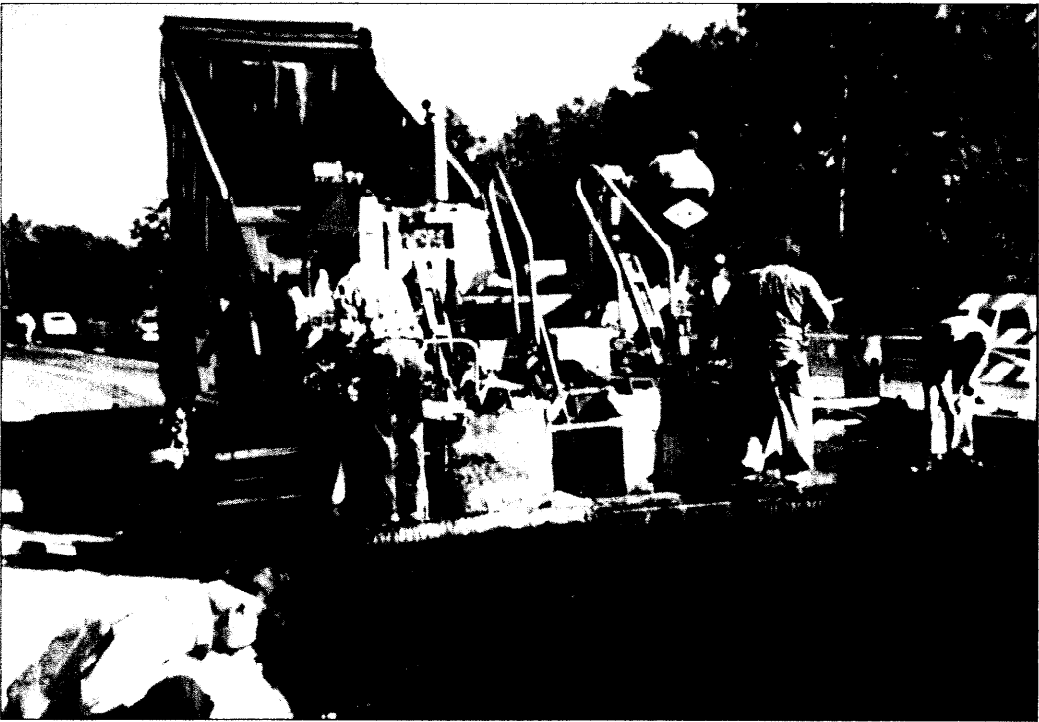
Factors Affecting Demand

Crumb rubber additives for pavements and combustion are the two categories of scrap tire utilization that have the greatest potential for using a

considerable proportion of the scrap tires generated each year. Both of these uses are based on proven technologies, and both have the potential to be used in many areas of the country. Substantial barriers remain, however, to expanded utilization of scrap tires in these areas.

A number of barriers have limited the use of rubberized asphalt for pavements, such as the high initial cost to highway departments. For example, although the use of rubberized asphalt usually doubles a pavement lifetime, it is often difficult for state and local governments to justify doubling the initial highway repair investment. Other barriers include lack of long-term test results on the performance of pavements that use these technologies; lack of

A number of communities such as the Massachusetts one pictured below have begun paving their streets with rubberized asphalt.

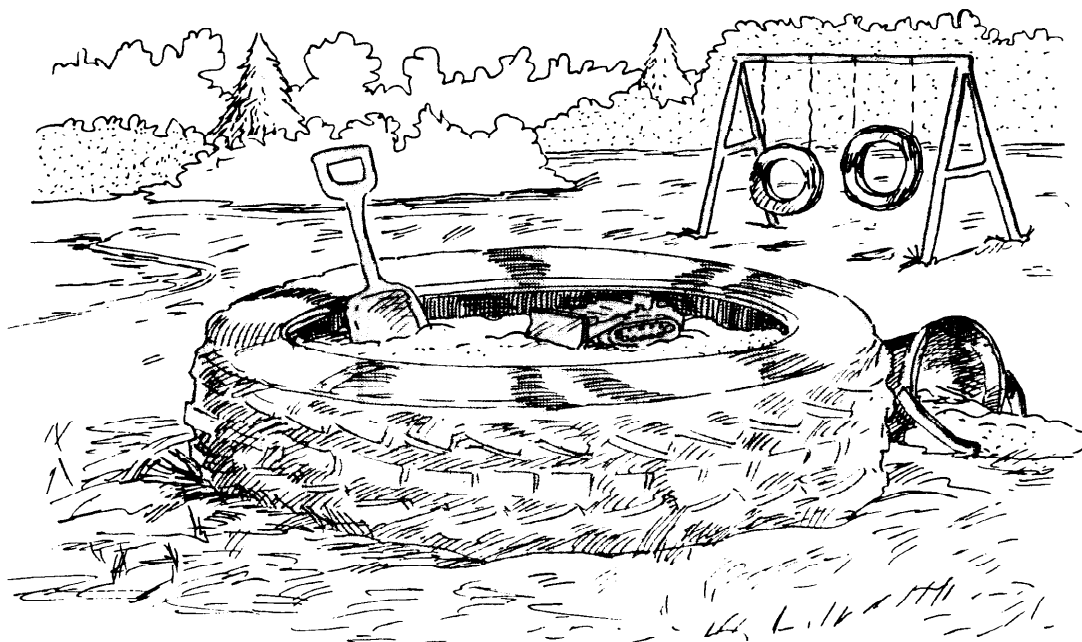


national specifications for pavements containing rubber; concerns about the recyclability of pavements containing rubber; and the existence of limited expertise in rubberized asphalt. As experience is gained with the two types of rubberized asphalt (RUMAC and asphalt rubber), however, these barriers may be overcome.

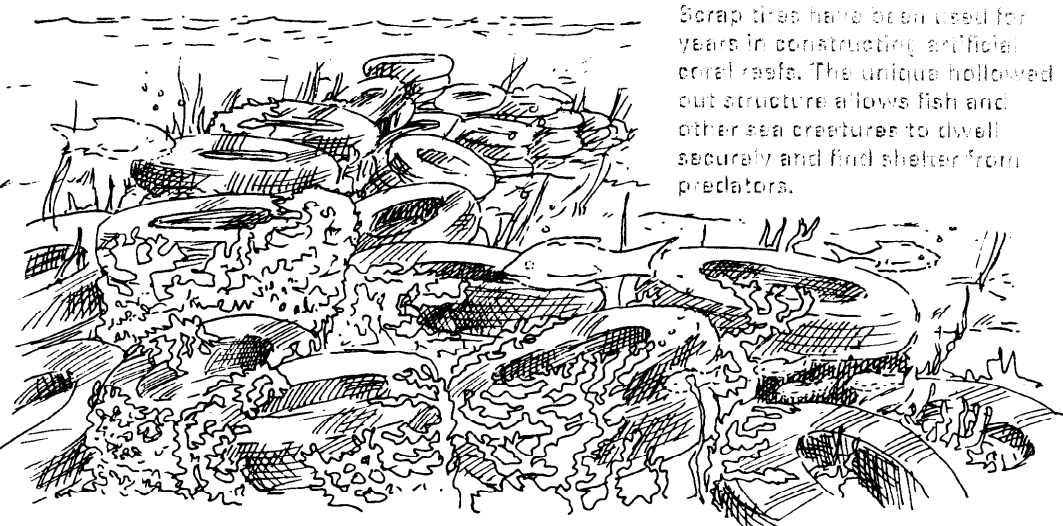
Barriers to expanded use of scrap tire combustion include limits on the revenue gained by the tire processor for electricity or tdf, as well as noneconomic factors such as environmental concerns, permitting, and siting. For tire-to-energy power plants, the key economic factor is the buy-back rate for electricity granted by the utility. These plants are feasible only where the buy-back rate is high. Generally, these rates are highest in California and the Northeast, where oil is the major fuel, and lowest in the Northwest, where hydropower is available.

Existing power plants that have been specifically engineered for the burning of tires are designed to control air pollution. They also create by-products that can be used rather than disposed of. Public concerns regarding tire storage and potential environmental pollution, however, can delay siting, permitting, and operation of these facilities.

In analyzing the economic feasibility of a tdf operation, the key issue is the price of the competing fuel, such as petroleum coke or coal. Because petroleum coke is a cheaper fuel than tires for cement plants, tdf cannot capture this local market. Similarly, tdf often must compete with coal as the fuel for cement plants. If tdf is only slightly cheaper, the additional capital costs needed to burn tdf are difficult to justify. For pulp and paper plants already equipped to burn hog fuel, only minor equipment modifications are needed to burn tdf.



Scrap tires, used whole, serve as inexpensive, safe playground equipment. Ground up, scrap tires can also replace gravel as a playground surface material.



Scrap tires have been used for years in constructing artificial coral reefs. The unique hollowed out structure allows fish and other sea creatures to dwell securely and find shelter from predators.

The annual cost savings can often justify these minor modifications to handle tdf.

Concerns about regulatory delays, permitting, or siting can also prevent an operator from converting to tdf. Cement kiln operators who switch from coal to tdf usually must conduct test burns with air pollution measurements, and the resulting delays can affect the projected cost savings from changing fuels. Similarly, pulp and paper mills that begin using tdf may need to conduct test burns under state and local environmental permitting requirements. Since tdf tends to increase the particulates emitted from these pulp and paper plants, the permits sometimes restrict the percentage of tdf that can be burned.

Future Trends in Demands

Several tire recycling technologies could substantially reduce the number of scrap tires requiring disposal each year. Recycling rubber from tires for use in asphalt pavements is a promising tech-

nology. Each year the United States consumes approximately 450 million tons of asphalt; this is enough capacity to consume about 10 times the annual supply of scrap tires. This use may be expanded significantly if federal, state, and local governments promote much broader use and demonstration of asphalt rubber and RUMAC technologies.

Recycling whole tires as fuel and using tdf in cement kilns and the pulp and paper industry also have the potential for further expansion. Other technologies and options are promising on a smaller scale, but are also important to an overall solution to the scrap tire problem. In some areas of the country, use of chipped tires as road fill material has potential for recycling a large number of tires. Other markets for scrap tires, such as artificial reefs, highway crash barriers, sludge composting, erosion control, and playground gravel substitute, will continue to be small, but may be important locally in some areas. Entrepreneurs can work with local industries to seek creative and innovative applications for scrap tires.



Recent State Legislation

As of January 1991, 36 states had regulated scrap tires, up from only 1 state in 1985. Twenty-two states had funded their state tire management programs through such means as a tax or surcharge on tires, added vehicle registration fees, or fees to transfer vehicle titles. These funds are used to clean up existing tire piles and to administer tire regulations. Twenty-four states had final regulations in place for

addressing storage of tires; typical provisions include requiring permits for tire piles over a certain size and requiring fire lanes in large tire piles.

Funds may also be used to provide grants or loans to entrepreneurs who are recycling tires or incinerating them for energy recovery. As of January 1991, four states (Oregon, Wisconsin, Utah, and Oklahoma) had developed rebate systems for scrap tires. In these programs, users of scrap tires are paid rebates of 1 cent per pound or more for recycling tires or burning them for energy recovery. These market incentives have been very helpful in stimulating these uses for scrap tires.

Market Report Availability

A copy of the full report, *Markets for Scrap Tires* (EPA/530-SW-90-074A) is available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161 (703) 487-4600.



Consumer Energy Information: EREC Reference Briefs

Scrap Tire Recycling

Estimates of the number of "scrap" tires in stockpiles around the United States range from 500 million to 3 billion. (A scrap tire is a tire that is no longer used for its original purpose.) An additional 270 million tires become scrap tires every year. Illegal or improper dumping and stockpiling of scrap tires pose serious health and environmental risks. Tire piles provide a breeding ground for rodents and mosquitoes, and are susceptible to fire from arson, lightning, and even spontaneous combustion. Tire pile fires are extremely polluting and difficult to extinguish.

Because of these problems, nearly every state has some form of scrap tire management regulations, including charges for tire disposal. Many states also offer financial incentives for using scrap tires in products. Most states ban disposal of whole tires in landfills. While these regulations generally increase tire disposal costs, which has led to an increase in illegal dumping in some areas, they have also increased the overall reuse and recycling of tires. In 1990, only about 11% of scrap tires were recycled. The Scrap Tire Management Council (see Organizations below) estimates that about 70% are now recycled or exported. The remainder were stockpiled or shredded and buried in mono (single material) landfills, or used as landfill cover.

We can all reduce the number of tires scrapped each year by maintaining proper tire pressure, rotation schedules, correct wheel balance and alignment, and by avoiding excessive acceleration and braking. These practices maximize tire life and performance, and also reduce vehicle fuel consumption and increase safety. Many people replace tires before it is actually necessary, doing so when another tire on the vehicle needs replacing. According to the U.S. Environmental Protection Agency (EPA), nearly 50% of tires are replaced after only half their potential life. Fortunately, tire dealers resell or reuse approximately 10 million used tires every year.

Many used tires can be retreaded for continued use. The Tire Retread Information Bureau (see below) estimates that about 30 million tires are retread and sold each year. Most are used by the trucking, aircraft, construction, and agriculture industries, and on U.S. government vehicles. Since retreading requires only one third of the crude oil used to make a new tire, this saved approximately 370 million gallons (1.4 billion liters) of oil. Eventually though, tires become unsafe for use on vehicles, and/or they cannot be retreaded. At that point, they can be recycled for use in new products and other purposes other than transportation, or converted to energy.

Nearly 15 million scrap tires per year are chopped, ground, or powdered for use in wide variety of products such as floor mats, adhesives, gaskets, shoe soles, and electrical insulators, or blended into asphalt for use in pavement binders and sealants, or as an aggregate substitute. Rubber modified asphalt (RMA) is reported to increase the durability and life of asphalt, but costs about twice as much as regular asphalt. Studies on the performance, health and safety effects, air emissions, and recyclability, and the development of mixing standards for RMA are underway. Positive results of these efforts are likely to increase the use of RMA.

Nearly 8 million scrap tires are cut, stamped, or punched into hundreds of different products every year. An additional 20 million whole or chopped scrap tires become fill and cover material in construction and landscaping, artificial reefs and breakwaters for beach erosion control, playground surfacing material and equipment, highway and race track crash and sound barriers, boat dock shock

absorbers, and even materials for building houses. Farmers and ranchers use about 2.5 million whole scrap tires for holding down covers on hay stacks, controlling erosion, protecting structures from livestock damage, as rollers in corn husking equipment, and many other uses.

The use of scrap tires for fuel increases every year, and is currently the largest single use of scrap tires. Tire-to-energy technology preserves natural resources by utilizing the stored energy in petroleum-based tires. Tires have a heating value of 12,000 to 15,000 Btu per pound (6,668 to 8,335 kilocalories per kilogram). Each 20 pound (9 kilogram) car tire is equivalent to about 25 pounds (11.4 kilograms) of bituminous coal. Tires contain less ash than most types of coal and less sulfur than bituminous coals. Tires are burned whole or shredded into chunks as tire derived fuel (TDF). Burning whole tires saves shredding costs, but may increase the cost of transportation and storage. In 1998, cement kilns, pulp and paper mills, electric utilities, waste-to-energy plants, and industrial boilers burned approximately 114 million tires. Although some of these facilities use whole tires and/or TDF as the only fuel, most mix or "cofire" the tires/TDF with other fuels, such as coal. The TDF makes up about 10% of the total fuel mix.

Another potential technology for converting tires to fuel and other products is pyrolysis. Pyrolysis is the thermal distillation or decomposition of organic materials into oils, gases, and char. Pyrolysis has been proposed as a method to break down tires into salable products including steel, oil, gas, and carbon black. Despite many efforts to commercialize this technology, it is not yet economically viable in the United States. The products of tire pyrolysis have limited marketability, due to their comparatively low quality. Refining the products to market specifications requires expensive equipment. The capital investment and operating costs make the products too expensive to compete. Given current prices for crude oil and natural gas, tire pyrolysis has very limited potential.

There are numerous, ongoing efforts in various stages of development, to use the rubber in scrap tires to make new tires or other products. Michelin Tire Corporation developed a method to incorporate rubber from scrap tires to make up over 10% of the material to make a new tire. While this technology is still being tested, if commercialized it could result in the use of 30 million scrap tires every year.

Air Products and Chemicals, Inc., with financial assistance from the United States Department of Energy (DOE), developed a method for treating rubber from scrap tires. The method works by exposing the rubber to reactive gases that cause the surface of the rubber to become chemically active. It can then be bonded to other polymers. The resulting composite has many potential uses including non-pneumatic (solid) tires, carpet underlay, automotive seals and gaskets, caulks, sealants, and adhesives. The treated rubber requires much less energy to produce than the polymers it replaces. Each tire recycled with this process saves the equivalent of about 12 gallons (45.5 liters) of oil. The technology is being developed further to allow the rubber to be combined with a wide range of other materials such as polyvinyl chloride.

Pacific Northwest National Laboratory (PNNL) studied a method to use thiophilic microorganisms to devulcanize (biodesulfurize) the surface of ground rubber particles, which will improve the bonding and adhesion of the ground tire rubber into the virgin tire rubber matrix. The microbial processing approach (see reference to reports below) may be applied to improve asphaltic materials and rubber and polymeric wastes to facilitate their recycling.

For More Information:

The following publications, articles, and organizations provide information on scrap tire recycling. This information was updated in May 2001.

Publications

Chemi-Microbial Processing of Waste Tire Rubber: A Project Overview, R. Romine and L.

Snowden-Swan, Pacific Northwest Laboratory, 1993. 13 pp. \$28.50. NTIS Order No. DE94004781.

Development of Asphalts and Pavements Using Recycled Tire Rubber. Phase 1, Technical Feasibility. Technical Progress Report, September 1, 1994--August 31, 1995, J. Bullin, et al., Texas Transportation Institute, 1996. Available from NTIS (see Source List below), 142 pp., \$36.00, NTIS Order No. DE97000259.

Markets for Scrap Tires, U.S. Environmental Protection Agency, Office of Solid Waste, 1991. Available from NTIS (see Source List below). 125 pp., \$36.50, NTIS Order No. PB 92115252, Report No. EPA/530-SW-90-074A.

Recycled Rubber Products Catalog, Scrap Tire Management Council (see Organizations below). \$25.00.

Scrap Tire Recycling: Promising High Value Applications, Final Report, B. Bauman, P. Leskovyansky, and H. Drela, Air Products and Chemicals, Inc., for United States Department of Energy, 1993. Available from NTIS (see Source list below). 64 pp., \$31.50, NTIS Order No. DE94008166.

Scrap Tire and Rubber Users Directory 2000, Recycling Research Institute (RRI), 2000. Available from RRI (see Organizations below), 160 pp., \$49.00.

Scrap Tire Technology and Markets, C. Clark, K. Meardon, and D. Russell, Pacific Environmental Services, for U.S. Environmental Protection Agency, Noyes Publications, 1993. 316 pp., ISBN 0-8155-13178. Out of print.

Scrap Tire Terminology, Tire and Rubber Recycling Advisory Council (TRRAC), 1996. Available from TRRAC (see Organizations, below), 27 pp., \$10.00.

Scrap Tire Use/Disposal Study 1996 Update, J. Serumgard and M. Blumenthal, Scrap Tire Management Council (see Organizations below). 55 pp., \$25.00.

State Scrap Tire Management Programs: 1999 Legislative, Regulatory, and Market Development Review, Recycling Research Institute (RRI). Available from RRI (see Organizations below). 36 pp., \$29.00

Summary of Markets for Scrap Tires, U.S. Environmental Protection Agency, Office of Solid Waste, 1991. Available from RCRA Information Center (see Organizations below). 12 pp., Free, Report No. EPA/530-SW-90-074B.

2001 Scrap Tire and Rubber Users Directory, Recycling Research Institute (RRI). Available from RRI (see Organizations below). 160 pp., \$49.00.

Articles

"A Finer Grind for Rubber Recyclers," D. Riggle, *BioCycle*, (36:3) p. 42, March 1995.

"All Tired Out: Tire Fires Hinder Efforts to Breathe Easy," B. Donahue, *E Magazine*, (1:6) p. 23, November/December 1990.

"California Promotes Reuse, Recycling of Scrap Tires," Editor, *Biocycle*, (41:12) pp. 42-45, December 2000.

- "Funding Innovative Uses for Scrap Tires," Ed., *BioCycle*, (40:3) pp. 61-63, March 1999.
- "Good Year for Tire Recovery," M.F., *BioCycle*, (37:3) pp. 35-37, March 1996.
- "Improving Scrap Tire Processing," C. Astafan, *Solid Waste Technologies*, (11:1) pp.13-14, 18, January/February 1997.
- "Innovative Uses for Whole Tires," K. Gray, *BioCycle*, (39:9) pp. 53-55, September 1998.
- "Michigan Couple Turn Old Tires into a New Home," K. Konkoly, *Waste News*, (6:45) p. 22, April 16, 2001.
- "Puncturing the Scrap Tire Problem," R. Steuteville, *BioCycle*, (36:10) pp. 51-52, October 1995.
- "Pushing the Scrap Tire Envelope," R. Steuteville, *BioCycle*, (37:10) pp. 30-32, October 1996.
- "Reprocessing of Used Tires into Activated Carbon and Other Products," H.Teng, et al., *Industrial and Engineering Chemistry Research*, (34:9) pp. 3102-11, September 1995.
- "Reactive Coprocessing of Scrap Tires and Heavy Oil," S. Saraf, et al., *Resources Conservation and Recycling*, (13:1) pp. 1-13, April 1, 1995.
- "Scrap Tire Market Analysis," M. Blumenthal, *BioCycle*, (38:2) pp. 70-72, February 1997.
- "Shredded Tire Market Options," K. Gray, *BioCycle*, (39:10) pp. 52-53, October 1998.
- "Tapping the Tire Pile," L. Lamare, *EPRI Journal*, (20:5) pp. 28-34, September/October 1995.
- "Tires-To-Energy Plant Takes Highroad in Managing Discharges," J. Makansi, *Power*, (136:4) pp. 152-56, April 1992.
- "Turning Discarded Tires into Basic Tire Chemicals," Ed., *Solid Waste Technologies*, (12:2) p. 12, March/April 1998.
- "Waste Tires Cut Costs of Building New Highways," S. Amirkhanian, *Biocycle*, (41:12) pp. 46-47, December 2000.

Source List

National Technical Information Service (NTIS)
5285 Port Royal Road
Springfield, VA 22161
Phone: (800) 553-6847 or (703) 605-6000
Fax: (703) 605-6900
Email: orders@ntis.fedworld.gov
World Wide Web: www.ntis.gov

Organizations

American Portland Cement Alliance (APCA)
1225 Eye Street NW, Suite 300
Washington, DC 20005

Phone: (202) 408-9494

World Wide Web: www.portcement.org/apca

The APCA can supply information on the use of tires for fueling cement kilns.

Earthship Biotecture

P. O. Box 1041

Taos, NM 97571

Phone: (505) 751-0462

Email: biotecture@earthship.org

World Wide Web: www.earthship.org

For information on building homes using scrap tires as the material for walls, contact Earthship.

Recycling Research Institute (RRI)

133 Mountain Road - P.O. Box 714

Suffield, CT 06078

Phone: (860) 668-5422; Fax: (860) 668-5651

Publication Orders and Subscriptions:

P.O. Box 2221, Merrifield, VA 22116

Phone: (703) 280-9112; Fax: (703) 280 2845

World Wide Web: www.scraptirenews.com

ERRI publishes several publications on scrap tire markets including a monthly newsletter *Scrap Tire News* that covers developments in the tire recycling industry. An annual subscription is \$118.00.

Resource Conservation and Recovery Act (RCRA) Information Center

U.S. Environmental Protection Agency

Office of Solid Waste (OS-305)

1725 Jefferson Davis Highway, Suite 1200-A

Arlington, VA 22202

Phone: (703) 412-9810 or (800) 424-9346

Fax: 703-412-3333

World Wide Web: www.epa.gov/epaoswer/hotline/index.htm

Scrap Tire Management Council (STMC)

1400 K Street NW, Suite 900

Washington, DC 20005

Phone: (202) 682-4880

World Wide Web: www.rma.org/scrap tires/scrap tires.html

STMC has various publications and briefing sheets on many aspects of scrap tire management and recycling alternatives. They also publish a free quarterly newsletter, *Scrap Tire Connection*.

Tire Association of North America (TANA)

(formerly the National Tire Dealers and Retreaders Association)

11921 Freedom Drive, Suite 550

Reston, VA 20190

Phone: (800) 876-8372 or (703) 736-8082

Fax: (703) 904-4339

Email: info@tana.net

World Wide Web: www.tana.net

TANA provides information on the tire industry, retreading, and scrap tire management.

Tire Retread Information Bureau (TRIB)

900 Weldon Grove

Pacific Grove, CA 93950

Phone: (888) 473-8732 or (831) 372-1917

Fax: (831) 372-9210

Email: info@retread.org

World Wide Web: www.retread.org

TRIB is a nonprofit, industry supported association dedicated to the recycling of tires through tire retreading and repairing. An information package is available on request.

Tire and Rubber Recycling Advisory Council (TRRAC)
c/o International Tire and Rubber Association, Inc. (ITRA)
P.O. Box 37203
Louisville, KY 40233-7203
Phone: (800) 426-8835 or (502) 968-8900
Fax: (502) 964-7859
Email: itra@itra.com
World Wide Web: www.itra.com

This brief was updated in May 2001.

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Your interest in energy efficiency and renewable energy is greatly appreciated. If we can be of further assistance, please feel free to contact us again.

Energy Efficiency and Renewable Energy Clearinghouse (EREC)
P.O. Box 3048 Merrifield, VA 22116
Voice (USA only): 800-DOE-EREC (363-3732)
Email: doe.erec@nciinc.com

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FW: Bridgestone Firestone recall Fact Sheet

- **Subject:** FW: Bridgestone Firestone recall Fact Sheet
 - **From:** Richard Dooley <rdooley@nahbrc.org>
 - **Date:** Mon, 11 Sep 2000 10:48:58 -0400
 - **List-Name:** p2tech
 - **Organization:** NAHB Research Center
 - **Reply-To:** Richard Dooley <rdooley@nahbrc.org>
-

FYI -

Here is a fact sheet written by Bridgestone /Firestone Inc. dealing with the disposal of the 6.5 million tires it will be recalling. Please pass this on to whomever you believe could use this information. . Bridgestone/Firestone distributed this Fact Sheet to all 50 states, on 8/31. They used the scrap tire contacts identified in EPA's most recent "State Scrap Tire Programs" document, which is on our web site at <http://www.epa.gov/epaoswer/non-hw/tires/scrapti.pdf>

BRIDGESTONE/FIRESTONE, INC.

RECALLED SCRAP TIRE MANAGEMENT PLAN
Fact Sheet
8/30/00

The purpose of this Fact Sheet is to provide Federal, State and local authorities with information on the current management plans for the scrap tires generated during the Bridgestone/Firestone Inc. (BFS) voluntary safety recall. BFS believes the recycling and disposal infrastructure currently in place throughout the United States will successfully manage the recalled tires.

The tires affected by the recall include:

- ~ Firestone ATX - size P235-75R15; Firestone ATX II ? size P235-75R15
All DOT Codes
- ~ Firestone Wilderness AT ? size P235-75R15 with the VD DOT Plant Code ONLY

There are currently over 13,000 authorized service centers across the United States replacing the recalled tires. The following procedures are in place at BFS to manage the proper disposal of recalled tires:

- ~ Upon removal of the tires, the tire is rendered useless by drilling a hole in, or cutting through the sidewall. This will ensure that recalled tires are not reused on vehicles.
- ~ BFS has coordinated with its current scrap tire vendors for additional pickups of scrap tires from company owned stores. BFS has also arranged with its normal transportation vendors to visit BFS dealers and the authorized service centers and remove stockpiled scrap tires.
- ~ Recalled scrap tires are being transported either directly to a licensed and permitted recycling or disposal facility or directly to a BFS

Distribution Facility where the recalled tires are checked to assure that they have been rendered useless and then transported to licensed and permitted recycling or disposal facilities.

~ None of the recalled tires are being redistributed or retreaded

~ The majority of the recalled tires are being shredded and beneficially reused as fuel for power plants or cement kilns, or ground into crumb rubber for recycling into a variety of useful products such as playground mats, asphalt and ?soaker? irrigation hoses.

BFS is committed to working with federal, state and local authorities to ensure proper handling of recalled tires and to address any scrap tire issues associated with the recall.

Additional information on the tires affected by the recall or authorized service centers can be obtained by calling 800-465-1904 or at www.firestonetire.com.

Any of the individuals below can be contacted for further information on the recall:

John Sheerin, Bridgestone/Firestone Inc. ? 847-981-3926
Michael Olsen, Bridgestone/Firestone Inc. ? 847-981-2388
Debra Hamlin, Bridgestone/Firestone Inc. ? 847-981-2403

For General Information on Scrap Tire Management, contact the Scrap Tire Management Council: John Serumgard at (202) 682-4842 or Michael Blumenthal at (202) 682-4882.

Mike Giuranna
EPA, Region III
1650 Arch Street (3WC21)
Philadelphia, PA 19103-2029
215-814-3298
215-814-3163 fax
e-mail giuranna.mike@epa.gov
=

-
- Prev by Date: **Re: Vehicle and equipment washes**
 - Next by Date: **RE: Vegetable Oil Recycling**
 - Prev by thread: **RE: P2 Checklists?**
 - Next by thread: **Car Free Day, Sept. 21, is the middle of P2 Week!**
 - Index(es):
 - **Date**
 - **Thread**

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News

CORPORATE NEWS

Bridgestone/Firestone Voluntary Tire Recall

As a demonstration of our commitment to customer safety and satisfaction, Bridgestone/Firestone, after consultation with the National Highway Traffic Safety Administration, began on August 9, 2000, a voluntary safety recall of P235/75R15 Radial ATX and Radial ATX II tires and certain Wilderness AT tires of the same size. We intend to spare no effort to retain our customers' long-standing confidence.

What are the details of the recall?

- This recall involves Radial ATX and ATX II tires produced in North America with the designation P235/75R15. Wilderness AT tires in the same size and with an additional Department of Transportation ten digit code beginning with the letters VD also are being recalled. The designations are found on the tire sidewall; in some cases, the designation may be found on the inside of the tire, depending on how it was installed. (Click [here](#) to download "How to Read & Understand Your Tire's Sidewall" (.PDF). Please Note: You will need Adobe® Acrobat® Reader™ to view and print this file. If you do not already have this installed on your browser, click [here](#) to download).
- Radial ATX, Radial ATX II, or Wilderness tires of other sizes or with other numeric designations are not affected.
- These tires are most commonly found on sport utility vehicles and light trucks.
- We will use warranty and other records to the extent possible to notify by mail customers with the affected tires. Ford also will provide vehicle identification numbers to locate Explorer and Mountaineer owners.
- We are replacing the tires, whether original equipment or replacement units, even if the customer did not make the original purchase and no matter how old or worn the tires are.
- To determine whether your tires are included in the recall or to locate your nearest authorized service center, call **1-800-465-1904** or, on the Internet, visit www.firestonetire.com for assistance.

How is the recall progressing?

- In order to replace as many tires on as many consumer vehicles as quickly as possible, the company has doubled production of replacement tires, maximized imports and is purchasing tires from other tire manufacturers.
- In addition, tires are being airlifted to the U.S. from Bridgestone Corporation manufacturing plants in Japan to help Firestone accelerate its delivery of replacement tires. These shipments will continue as long as needed to assist consumers involved with the recall.
- We have previously announced that we anticipated completing the recall before spring. But, we are not satisfied with that. We will continue to work to complete the recall as quickly as possible.
- In addition, we have extended our reimbursement policy for tires involved in the recall. Consumers will continue to be able to have their tires replaced free of charge at any Firestone Tire and Service Center, authorized Bridgestone/Firestone retailers or Ford dealers. Through the extended policy, however, customers who choose to purchase competitors' tires from any other tire retailer will be eligible for reimbursement up to \$100 per tire, including mounting and balancing charges and taxes.

What is known about the causes of the tire failures?

- We are working with the National Highway Traffic Safety Administration and Ford

Motor Company as we conduct an intensive investigation to find the root cause or causes of the problem. We are using all of our resources to determine the cause of these failures.

- It may take time to scientifically determine the cause of the problem. Tires are highly complex engineered products. A typical tire can have more than 26 components, 14 different compounds, and require 29 separate steps to manufacture.
- It is also important to remember that there are other factors that affect tire performance, such as weather, temperature, vehicle loads, driving styles, vehicle dynamics, inflation pressure and road conditions. We will be looking at all factors to determine the causes of the failures.
- Owners of vehicles with affected tires should ensure their tires are properly inflated. Bridgestone/Firestone recommends an inflation of 30 pounds per square inch.

For more information: 1-800-465-1904.

For information within Mexico: 0-1-800-713-7646.

For information within Puerto Rico: 1-888-276-2120.

For information within Canada: 1-888-212-4733.

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Some may have lived in the northern Gulf before, but they have never been reported. Researchers are concerned that the influx, which likely is an indicator of a stressed ecosystem, could significantly disrupt populations of shrimp, crabs, fish, plankton and other Gulf inhabitants. Scientists hope to monitor the jellyfish through the winter. Monty Graham, Dauphin Island Sea Lab, 334-861-7555, mgraham@disl.org. Tim Reid, Mississippi-Alabama Sea Grant Consortium, 228-875-9341, tim.reid@usm.edu (has video and photos). Jim Giattina, EPA Gulf of Mexico Program, 228-688-2711, giattina.jim@epa.gov.

WHERE ARE ALL THOSE TIRES GOING?

The recent recall of 6.5 million Bridgestone and Firestone tires highlights the issue of management, disposal and recycling of scrap tires. This recall is being conducted in three phases. Authorized Bridgestone/Firestone service centers are collecting the tires, disabling them, and delivering them to nine regional distribution centers where scrap tire experts will arrange disposal or recycling. Recall info at http://mirror.bridgestone-firestone.com/news/atx/newsmain_ATX.html. Media hotline: 877-201-2373.

Scrap tire laws, regulations, and programs are handled on the state level. Check your state's Web site or environmental quality dept. for info. Also, the Scrap Tire Management Council (<http://www.scraptire.org>) knows the situation in many states. Contact John Serumgard, 202-682-4842 or john@rma.org. The scrap tire industry processes about 270 million tires per year. While the current recall is large, it represents only a small increase in overall volume. However, temporary storage issues may arise in some localities. Illegal tire dumps, the setting for most tire fires, remain a problem in some states.

Currently, more tires are recycled into aggregate, roadbed material, rubber goods, and other applications than end up in landfills and dumps. However, the tire-recycling industry needs markets. Look for synergies with state or local civil engineering projects. Dick Gust, Tire & Rubber Recycling Advisory Council, 773-871-9651 or dgust@lakincorp.com. Scrap tire recycling info and resources from the US DOE: <http://www.eren.doe.gov/consumerinfo/refbriefs/ee9.html>.

GOLF COURSES IMPACT WATER RESOURCES

With leisure industries thriving in this year's booming economy, nearly 500 new golf courses will open. See <http://www.ngf.org/courses> for a detailed list of new courses, by state. Golf courses need a lot of water to stay green, and their impact on local water resources is increasingly controversial, especially in arid states. These stories are almost always community-specific. Local hydrologists, golf course architects, and environmental groups will probably be your best sources.

If covering a new or proposed golf course in your region, ask where their water is coming from, and how that will affect other water users and the local environment. Every state except CO has a permitting process for significant water consumption, but in general environmental impacts are not considered. Surprisingly, several arid states, such as Texas, have the easiest permitting processes. Contact your state environmental agency to learn about your state's requirements. Some states, including FL, require that golf courses use at least some water reclaimed from sewage treatment plants.

Almost every golf course also requires a Section 404 wetlands permit from the Army Corps of Engineers, which may be the only point at which environmental impact is considered. Contact your local Corps division or district. See <http://www.usace.army.mil/organizations.htm#Divisions> for wetlands permit information on local golf courses.

The Golf Course Superintendents Ass'n. of America offers water conservation tips. See <http://www.gcsaa.org/resource/envirom/watercon.html>, or contact Jeff Bollig, 785-841-2240, jbollig@gcsaa.org. New approaches to saving water include more sophisticated automated irrigation systems -- as well as more natural, rough-hewn course designs that require less irrigation.

Tire Safety

General Products
Group

Scrap Tires

Technical &
Standards

Market Information
Services

Government
Affairs

Newsroom

Publications

About RMA

Scrap Tires | Facts and Figures:

Number of scrap tires generated annually (2000): **273 million**

Approximate weight of these scrap tires: **3.6 million tons**

Percentage of total solid wastes generated: (2000): **1.8%**

Number of scrap tires in stock piles: **300 million**

Number of scrap tires going to a market (2000): **196 million**

Number of scrap tires processing facilities: **498**

Number of scrap tires used for fuel (2000): **125 million**

Number of facilities using tire-derived fuel (1998): **72**

Scrap tires used in civil engineering applications (2000): **18 million**

Number of scrap tires exported (2000): **15 million**

Scrap tires processed into ground rubber (2000): **18 million**

Scrap tires punched/stamped into new products (2000): **8 million**

Number of scrap tires used in a pyrolysis process (2000): **0**

Number of states with scrap tires legislation/regulations: **48**

Btu's per pound of scrap tire rubber: **15,000**

Average weight of a passenger car scrap tire: **20 pounds**

Number of states that ban whole tires from landfills: **33**

Number of states that ban all scrap tires from landfills: **12**

Number of states with no landfill restrictions: **5**

Number of States with a fee: **30**

States that allow Monofills: **7**

Percentage of scrap tires that are passenger car tires: **84**

Percentage of scrap tires that are from light and heavy trucks: **15**

Percentage of heavy equipment, aircraft and off-road tires: **1**

Range of weight for truck tires: **40 pounds to 10,000 pounds**

Amount of steel in a steel belted radial passenger car tires: **2.5 pounds**

Oil (equivalency) in a passenger car tire: **7 gallons**

Best ways to reduce the number of scrap tires generated:

1. Purchase longer-tread life tires
2. Rotate tires every 6,000 miles

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3. Check for/inflate tires to recommended air pressure levels once a month or before every long trip
4. Balance tires when rotating them

Number of passenger car tires to equal one ton: **100**

Specific gravity of tire rubber: **1.15**

Number of polymers (rubber) used in tire construction: **3-4**

Number of new products that contain recyclable tire rubber: **110 and counting**

Fastest growing new markets: **playground cover, soil amendments, flooring/matting**

For further information please contact: The Scrap Tire Management Council at the following numbers:

John Serumgard (202) 682-4842
Michael Blumenthal (202) 682-4882
Cleo Hall (202) 682-4883

Firestone recall: Where have all the tires gone?

By Lucy Chubb

Wednesday, September 20, 2000

On Aug. 9, Firestone Tire Company issued a recall on certain sizes of its Radial ATX and Radial ATX II tires produced in North America, and of its Wilderness AT tires produced in Decatur, Illinois.

The tires are being inspected for tread separation problems that may be linked to fatal accidents principally involving the popular Ford Explorer.

In one of the largest recalls on record, consumers are expected to return an estimated 6.5 million tires to Firestone's nine distribution centers and 1,500 stores across the United States.

What will happen to all the tread?

"The main focus of interest is to ensure they do not get back out into the stream of commerce," said John Serumgard, executive vice president of the Scrap Tire Management Council. To this end, dealers who take in the recalled tires have been instructed to destroy enough of each tire to prevent it from being used again, even as a retread.

After that, the priority is recycling.

"The general plan is to somehow get them recycled," said a spokesperson in Firestone's public relations department who asked not to be named. "We have been working with the recycling industry for 10 years to keep used tires out of landfills."

The 6.5 million recalled tires are a drop in the bucket compared to more than 270 million tires scrapped annually in the United States. The stream of tires flowing into recycling centers across the country is fairly steady, and the recalled Firestone units should only cause a temporary backlog at certain locations.

"I do not see any lasting downside to this," said Serumgard.

Firestone's woes may also have a silver lining.

"The recall is giving the scrap tire recycling industry the exposure and credibility it has deserved for some time," said Mary Sikora, publisher of the Scrap Tire News, an independent print and on-line publication that provides information to industry players about recycling and reuse of scrap tires. "It is raising awareness about an industry that has been

growing for the last 10 years — an infrastructure of companies that collect and process these tires into reusable parts."

An average of 70 percent of all scrap tires are recycled, according to industry statistics, principally for use in crumb-rubber production, landfill and roadbed civil engineering projects. Last year the Colorado School of Mines offered grants of up to \$45,000 to academic and industry teams interested in investigating potential uses for discarded tires.

Most of the remaining tires are shredded and placed legally in landfills, usually in areas where there is little or no market for scrap tires. Very few end up in illegal dumping grounds, according to Serumgard.

"The situation has raised awareness of the fact that scrap tires have to go somewhere," he said. "In fact, the vast majority are going to a proper end-use market. Efforts are being made for finding friendly markets for scrap tires."

In California, the majority of the recalled Firestone tires are being directed to crumb-rubber production plants, said Serumgard. Crumb rubber is used principally in asphalt applications, but is also popular as a safety surface for playgrounds and a raw material for the manufacture of mats, including door and industrial mats.

The largest single market for used rubber tires is as a supplemental fuel used in cement kilns, pulp and paper mills and some types of electric generation facilities.

"Tires are very comparable or better than coal in terms of emissions," said Serumgard. A total of 110 electricity generating facilities in the United States hold permits to burn tires.

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His first potential product, the elder Coffin said, was a traffic marking device, scotched on the way to its debut in 1972 when he saw a highway crew with a truckload of orange cones.

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Meanwhile, the problem of scrap tires grew. By one estimate, there are roughly 3 billion waste tires in the United States, a figure that's rising as Americans throw away 270 million and recycle about 180 million a year.

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Tire Conversion Technologies won't close that gap, Joseph Coffin said. Yet in time it could build plants in major population centers and significantly reduce the volume of rubber scrapped nationwide.

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The company, which opened its Glenville plant in March with one employee, now processes a little more than 600 tires a day with a staff of 28 and plans to top 1,800 tires a day by the end of November, Jerry Coffin said. By then, he hopes to have investments in place to build the next-generation plant, an automated production line filling the 150,000-square-foot industrial park building and employing up to 100.

The current plant turns out about six feet of DuraBoard a minute, he said. The automated plant is projected to reach 600 feet a minute.

The company recycles every part of each worn-out tire it processes, Coffin said. Those in good enough shape to go back on the road are sold. Others, in which the tread that would become a DuraBoard is torn up, are shredded for use in capping landfills.

In the production line, workers sort tires by size, then pull out the steel bead that held the tire to a wheel and send it to a metals recycler. They cut out sidewalls and shred them to crumb rubber, a supplement for the soil in horse arenas.

They grind off excess tread to flatten the surface, producing powdered rubber returned to tire makers, then cut the tread to make strips, which are flattened with pressure and heat.

The strips are sandwiched with gum rubber and subjected to more heat and pressure to form a structure of solid rubber, reinforced with steel belts--a DuraBoard.

The idea of making planks or posts from old tires has been around for a decade or more, though no producer has yet succeeded in the marketplace with it, said John Serumgard, executive vice president of the Scrap Tire Management Council, a nonprofit organization supported by the tire industry and devoted to expanding the market for scrap tires.

Other products, such as temporary road beds made of sidewalls, laced together, and heavy mats used in blasting, have been more successful, he said. Myriad kookier products--armor to make cars bulletproof, for example--have flopped.

Success for TCT very likely will depend on whether it can convince potential buyers that DuraBoard is either better or more cost-effective than what they're using now, Serumgard said.

"It's a question of finding markets that will accept the product and marketing like heck into them," he said.

One mistake other tire recyclers have made is designing their businesses around the fee they receive for taking in tires, Jerry Coffin said. TCT gets \$1 a tire.

"We're very cautious here," he said. "We're profitable [even] if we have to pay for our tires."




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- Throughout the 1970's Zrostlik added to the product line and also served as president of the National Tire Dealers & Retreaders Association Superior Council. He sold the business in 1985 and remained involved until he retired in 1988.

In 1990 he founded Stellar Industries Inc., which was the first U.S. designer and manufacturer of hydraulic hooklift loaders. To increase sales volume, Stellar purchased the assets of Collins Tire division of David Manufacturing of Mason City, Iowa. Today more than 160 people are employed by Stellar Industries.

Trex Gleans Three Awards

As if to prove that good things truly do come in threes, Trex Co. Inc.--a manufacturer of wood-polymer lumber called Trex Easy Care Decking--earned three distinctions last fall:

Forbes ranked Trex number one in its annual list of the "200 Best Small Companies in America." Trex earned the recognition thanks to its solid financial performance in the preceding 12 months, including sales growth of 77 percent, earnings-per-share of 57 percent, and return on equity of 16 percent;

IndustryWeek selected Trex to receive one of its "Growing Companies 25" awards, which recognize 25 of North America's most successful small and midsize public and private manufacturers. These awards rate companies on such factors as their competitive strengths, strategies for long-term growth and profitability, revenues, productivity, human resources, and use of technology; and Trex Easy Care Decking has won Home Magazine's 2001 American Building Products Award in the building materials category. Products are rated based on their impact on homeowners' lifestyles. Trex's wood-polymer lumber won "because it has defined a new category and has answered a real need for homeowners who are considering a deck or outdoor structure," according to the magazine.

Recalled Tires Just a Drop in the Industry Bucket

Recycling Today News October 2000

For the past few months US has been wrapped up in the Bridgestone/Firestone tire recall that has the company replacing some 6.5 million tires after 88 deaths had been reportedly linked to the tire failure. While the safety of American drivers is certainly at the forefront of this issue, what happens to the millions of recalled tires should also be of great concern.

According to the New York Times, if someone found a way to stack the tires that are being recalled in a column at a landfill, they would form a pile 949 miles high. The tires could also form a wall 50 feet high, 50 feet wide and a half a mile long.

To most people, those figures would sound alarming, but according to John Serumgard, executive vice president of the Scrap Tire Management Council (STMC), the 6.5 million tires being recalled only represent a drop in the bucket compared to the amount of scrap tires generated annually.

According to the STMC's Web site, there are 270 million scrap tires generated annually with 498 scrap processing facilities in the country to handle the waste. Of the 270 million, 20 million are used for civil engineering applications, 114 million are used for fuel, 15 million are processed into ground rubber and 8 million are punched/stamped into new products.

In addition to the recycling aspect, scrap tires can also cause a health hazard. Tires are a breeding ground for mosquitoes that can carry deadly diseases, and therefore it is in the public's best interest for tires to be taken to a scrap processor for recycling.

In an AP report, Michael Campbell, president of Carolina Tire Recycling in Greer, S.C., says the recall has brought attention to the valuable commodity that tires have become. "It's brought a lot of awareness to the marketplace," Campbell says. "People just don't hide their tires in the woods anymore."

But, with so many tires being recalled, some are wondering if the processing facilities are equipped to handle the scrap tires that are being generated at what some may see as a dizzying pace.

Rich Buckley, a spokesman for Bridgestone/Firestone says that the company has a mechanism in place to handle tires every day. He says the recalled tires are being collected at nine distribution centers nationwide and at more than 1,500 independent stores. Buckley also says the number of tires being recalled is nothing to be alarmed about.

"It's a process that we think we can manage in an environmentally sound manner," Buckley says. But, some tire recyclers say they are having a hard time keeping up with the pace.

"It's coming out their ears," David Greenstein, who runs U.S. Tire Recycling Partners in Concord, N.C., told the Charlotte Observer. Greenstein's company has been running extra shifts on Saturdays to try to keep up with the amount of tires coming in. Serungard says that while the recall may be causing a temporary overload for some processors, most are taking it all in stride.

"Normally tire recyclers and scrap tire haulers will see a decline in the volume of tires they handle in the winter because the peak season is late April to early summer," Serungard says. "They're seeing the busy season last a bit longer this year as a result of the recall [but] I think the system can handle it without breaking down. There's sufficient capacity within the system to handle all the tires." While the recalled tires will be recycled into a myriad of things, there is one thing they will not be used for says Serungard. Sometimes scrap tires are reused as vehicle tires if they have adequate tread or they can be retread to be used again. "That will not happen with these Firestone tires. They will never be used again as a vehicle tire."

Rubber Division hire executive director, cut staff

CINCINNATI October 30 American Rubber News

The ACS Rubber Division is launching a restructuring that will give it an executive director and eliminate its current five-person staff. By July 1, 2001, the technical association will be managed by an executive director reporting to the division's leadership, according to Toms B. Royal, division chairman from H.M. Royal Inc., and Rudy School, chairman-elect from R.T. Vanderbilt Co. Inc. Two coordinators will be hired to handle activities such as exhibitions, meeting arrangements and marketing, and two administrative assistants also will be added. The current staff "will be given consideration for future employment," the division said. They might transfer to other jobs at the University of Akron. The division also is working to obtain a long-term lease to remain on the UA campus, but could move to another Akron site barring the signing of such an agreement, Royal and School said. "It is not our desire (to relocate)," Royal said.

Goodyear, USWA reach tentative agreement on midterm issues

CINCINNATI October 30

CINCINNATI (Oct. 30)--Negotiators for the United Steelworkers of America union and Goodyear tentatively have agreed on several issues, including wage and pension, in their midterm contract talks in Cincinnati. No details of the agreement have been released by company and union spokesmen pending final ratification by local USWA members. There are 20,000 workers and three contracts affected by the re-openers, including employees at nine Goodyear, three Kelly-Springfield and two Dunlop plants in the U.S.

Firestone judge places stay on discovery

INDIANAPOLIS October 30

The judge in charge of 62 consolidated Ford Motor Co.-Bridgestone/Firestone Inc. tire-related lawsuits has placed a stay on discovery in the cases. Judge Sarah Evans Barker of the U.S. District Court for the Southern District of Indiana stopped all further discovery "until case management plans have been made, unless persuasive, exigent circumstances demand otherwise." Barker issued her order to stop the deposition of John Lampe, Bridgestone/Firestone chairman and CEO, in one of the consolidated lawsuits. Stating that Lampe's evidence would "overlap substantially if he were deposed substantially in each case," Barker ruled that deposing Lampe piecemeal "threatens to undermine the purpose of multidistrict litigation." Barker was assigned the cases Oct. 24 by the Judicial Panel on Multidistrict Litigation.

Rubber News